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**LIMITED-SERVICE HOSPITAL PIONEERS:
CHALLENGES AND SUCCESSES OF THE
ESSENTIAL ACCESS COMMUNITY HOSPITAL/
RURAL PRIMARY CARE HOSPITAL
(EACH-RPCH) PROGRAM AND MEDICAL
ASSISTANCE FACILITY (MAF) DEMONSTRATION**

DRAFT FINAL REPORT

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I. INTRODUCTION

Small communities in rural America are struggling to maintain health care resources in the face of increasing competition and a dwindling population and economic base. Nowhere is the problem more acute than in the almost 1,200 nonmetropolitan hospitals with fewer than 50 beds. In response to the threatened survival of these small facilities, the Health Care Financing Administration (HCFA) has supported two initiatives to introduce innovative limited-service hospitals, which more appropriately address the realities of small communities: the Essential Access Community Hospital/Rural Primary Care Hospital (EACH-RPCH) program, implemented in seven states, and the Medical Assistance Facility (MAF) demonstration in Montana. Both establish a new Medicare provider that is exempt from specific key requirements of participation, and both offer enhanced reimbursement. Both hope to create financially viable facilities but differ in their approach in several significant ways.

This report documents the evaluation of the EACH-RPCH program from its start in October 1991 through September 1994. Building on the earlier work of Gaumer, Gabay, and Geller (1992), it also continues the assessment of the MAF program through September 1994.¹ Since other states have looked to these two programs as possible models for their rural communities, we assess the implementation process, initial operating experience, and potential impact of the programs on access and cost as related to limited service hospitals. This introductory chapter reviews the background of the EACH-RPCH and MAF programs, discusses the evaluation issues to be addressed, and summarizes the evaluation methodology and data sources. Chapters II and III examine the development of networks and the shift to limited service licensure under the EACH-RPCH program. Chapter IV then reviews the implementation and operation of the MAF demonstration. Chapters

¹This report builds on earlier reports by the evaluation team including Wright, Wellever and Felt, May 1994; Felt and Wright, September 1993; Felt and Wright, October 1992, and Felt, Sweetland and Wright, July 1992.

V and VI focus on the two programs' impact on access to care and mechanisms for quality assurance, respectively. The report concludes with Chapter VII, which assesses the impact of both programs on facility finances and the Medicare program.

A. BACKGROUND: THE PROBLEMS OF RURAL HOSPITALS

1. Financial Stress and Closures

Steadily mounting evidence shows that hospitals located in rural America are under increasing stress, which threatens the survival of many and has generated much policy concern. The financial condition of these hospitals has declined substantially during the past decade. According to the Prospective Payment Assessment Commission (ProPAC 1990), the majority of nonmetropolitan facilities lose money on their Medicare patients. Almost 40 percent have had three or more consecutive years of negative Medicare operating margins. Although Medicare policy has been significantly shifted in order to aid rural hospitals, these facilities, particularly those with fewer than 50 beds, continue to operate with negative, below-average prospective payment system (PPS) margins (Komisar 1991, Office of Technology Assessment 1990, ProPAC 1994). The relative dependence of these hospitals on Medicare patients makes their total financial position precarious. As much as half of all rural hospitals receive local tax-financed subsidies. Even with this support and small recent improvements in general profitability, total revenues lag behind costs for fully 39 percent of rural hospitals with fewer than 50 beds (ProPAC 1994). One consequence of this increasing financial stress has been a rising tide of rural hospital closures. The actual number is somewhat dubious, since estimates from the American Hospital Association of over 200 rural closures between 1980 and 1988 include facilities that combined or subsequently reopened (American Hospital Association 1989, General Accounting Office 1991). One study has identified 132 permanent closures over this period, with the pace of closures sharply increasing to over 30 a year by 1988 (Hart et al. 1990).

Financial stress has had far more broadly felt consequences. Facilities have had to downscale their services, have been unable to acquire new technology, and have found it increasingly difficult

to compete for personnel. (For discussions of these problems see Office of Technology Assessment 1990, Ermann 1990, Moscovice and Rosenblatt 1985).

2. Impact of Stress on Access to Care

There is widespread concern that lagging capital improvements, downscaling, and outright closure will limit access to adequate care. Although most previous closures have befallen apparently "redundant" facilities (those which are geographically close to alternative sources of care), more isolated hospitals have increasingly faced closure. Of the 132 permanently closed facilities, 31 percent were more than 25 miles from their nearest neighbor (Hart et al. 1990). A study of 11 recently closed rural hospitals found that 6 of these closures raised concerns about access because of isolation or stability of the remaining hospitals (Rosenbach 1990). A more subtle issue related to access is the closure of hospitals that serve a large minority population who may not be welcomed by alternative facilities (Rosenbach 1990; Wright, Errecart, and Hirst 1990). One consequence of the demographic shifts that occur in most rural areas is a disproportionate share of elderly residents. Not only does this group require more frequent hospital stays, but research has also shown they are far less willing and/or able to travel to distant hospitals (Hogan 1988, Adams and Wright 1991).

Increased travel for emergency care is another access issue raised by closure. Maintaining access to emergency care is of paramount importance to many rural communities (Office of Technology Assessment 1989). In addition to motor vehicle accidents, the types of occupations typical of rural areas--farming, mining, and logging--are among the most dangerous in the nation, with accident rates many times the national average (Pratt 1990). While the development of modern emergency services does not mean that every local hospital must retain an emergency room, it is a key issue in the design of alternatives to existing facilities.

Beyond emergency care, there is sufficient research to demonstrate that rural hospitals are key to attracting and retaining community physicians. Counties and communities without a nearby hospital have significantly greater problems with physician supply (Langwell et al. 1985, Wright 1985).

Loss of local access to primary care can have far greater consequences than increased travel for relatively rare inpatient stays. Like hospitalization, the use of ambulatory care is directly related to travel distance/time, particularly for low-income families and the frail elderly (see, for example, Kleinman and Makuc 1983).

3. Underlying Difficulties

The litany of difficulties that has weakened rural hospitals has been extensively documented (see, for example Moscovice and Rosenblatt 1982, Moscovice 1989, Finch and Christianson 1981, Ermann 1990, General Accounting Office 1990 and 1991, Office of Technology Assessment 1990). These problems are summarized below:

- *Demographic Shifts.* Despite a brief flurry of reverse migration to nonmetropolitan areas in the 1970s, many rural areas have continued to lose population. In general, the more isolated the community, the greater the loss. In many rural communities, "depopulation" has left an increasingly elderly population in need of hospital facilities but too few in number to generate reasonable utilization rates.
- *Economic Stagnation.* Industries that form the economic base of numerous rural communities have stagnated in the past decade. Outright recessions and subsequent weak recoveries have plagued the farming, mining, and timber industries. Similar local declines in manufacturing have generated further economic stagnation. This has hastened population decline but has decreased the income of patients, reduced insurance coverage, and increased the relative burden of public subsidies to local hospitals.
- *Centralization and Excess Capacity.* As the primary community facility, small town hospitals have suffered the same fate as other commercial and public services. Improved transportation and changes in the structure of retail trade have led to increasing geographic centralization, even in areas with an enduring population base. Many rural areas have a redundant complement of small hospitals built in response to a more rudimentary transportation system.
- *Physician Recruitment and Retention Difficulties.* Many rural areas have faced economic, geographic, and social disadvantages in competing for physicians and other health professionals. In addition to recruitment problems, retention problems have also caused low patient volume and subsequent financial difficulties for rural hospitals.
- *Change in Medical Practice.* Nationwide, all hospitals have experienced pronounced declines in admission rates and average lengths of stay. A recent study for ProPAC found that rural hospitals have tended to serve precisely those types of cases, such

as adult pneumonia, adult gastroenteritis, or angina, nationally associated with the most pronounced drops in admissions and lengths of stay (Codman Research 1990). Partly as a result of this situation, the utilization rates of rural hospitals have fallen faster than those of urban hospitals.

- **Cost Structure.** Empirical estimates of the optimum scale of hospitals suggest that the inherently small size of rural facilities raises average costs. Uncertainty about demand, state staffing requirements, and indivisibility of key personnel and units increase the ratio of staff to patients in small hospitals and thus further raise average costs. Isolated location may not always entail lower wage rates (it may even require a premium for certified personnel) and has been shown to impose additional costs in the form of requirements for a more complex array of services than might be expected from a small facility (Wright, Errecart, and Hirst 1990).
- **Medicare Reimbursement Policy.** Rural hospitals tend to be disproportionately dependent upon Medicare patients, who often generate well over half the revenue. Despite greater dependency on Medicare as a payer, many rural hospitals treat only a small number of Medicare patients. Large losses under PPS for a few patients are therefore less likely to be compensated by gains on other patients. However, changes in payment policy and increases in special designations under a PPS appear to have offset financial disadvantages relative to urban hospitals (Komisar 1991).
- **Self-Perpetuating Inability to Compete.** Research shows that rural hospitals are losing a substantial number of potential patients to urban facilities (Codman Research 1990, Adams and Wright 1991, GAO 1991). Whether this loss has been increasing over time has not yet been fully explored, but it is undeniable that weakened facilities find themselves in a vicious downward spiral. Without access to capital, they can neither modernize, improve their staff, nor keep up with technology. As urban and larger rural facilities attempt to attract patients from an even larger radius, small hospitals find effective competition difficult.
- **Weak Management.** In addition to the major structural challenges created by demographic, economic, and technological changes beyond the control of facilities, there is some evidence that sluggish and inexperienced management and boards of directors have waited too long to respond to changes in their markets. Long-neglected capital structure, unwillingness to market, and an inability to institute cost-control measures are all alleged to have weakened some facilities (see, for example, Burda 1989).

4. The Concept of Limited-Service Hospitals

The problems faced by small, rural hospitals suggest that a different form of health care institution, better adapted to today's rural environment, might better serve residents where full-service hospitals are no longer viable. The strategy behind this concept is to allow small facilities to shift their licensure status to a downscaled, simpler organization that would offer limited-services and

operate under relaxed standards in such areas as 24-hour RN staffing. To help ensure financial viability, the limited-service strategy combines hoped-for cost savings from reduced requirements and improved reimbursement.

Drawing in part on different experimental models developed in California, Kansas, and Colorado, and on early work in Montana (Alpha Center 1991; Helms, Campion, and Moscovice 1991), two primary experiments in the limited-service hospital concept have been launched--the MAF program, operating as a demonstration in Montana, and the EACH-RPCH program, introduced in seven states under direct congressional authorization. In addition to using a limited-service hospital model, the EACH-RPCH program is designed to encourage rural health networks to promote regionalization of services.

In addition to these two initiatives, there is now a rapidly expanding menu of models and proposals for alternative rural facilities. Other states have continued to develop their own models, including the Alternative Rural Hospital Model (ARHM) in California; the Rural Health Care Facility in Washington State; and in Florida, the Rural Acute Care Hospital, Rural Primary Care Hospital, and Emergency Care Hospital (McGuire, Walker, and Cantieri 1993; Washington State Department of Health 1991; State of Florida 1993). The widespread interest in the limited-service concept makes the implementation and operational experience of the MAF and EACH-RPCH initiatives especially relevant to health care policy.

B. THE MAF PROGRAM

Created by the Montana legislature in early 1987, the MAF is the first limited-service rural hospital model established by law. The MAF program offers to very small, isolated, rural hospitals relaxed licensure requirements, which in Montana are essentially the same as the Medicare conditions of participation. After the act that created the MAF was passed, the Montana Hospital Research and Education Foundation (MHREF), an organization associated with the Montana Hospital Association, proposed a demonstration of the model to HCFA. MHREF and HCFA negotiated a

cooperative agreement for the MAF demonstration in June 1988. Waivers of the Medicare hospital conditions of participation were required in addition to certain reimbursement rules. After two and one-half years of model development and consideration by HCFA, waivers were finally granted in December 1990, and within days, the first MAF was licensed. Legislation passed by Congress in 1993 extended the demonstration and the waivers until 1997, and there are legislative proposals to make services in MAFs permanent national Medicare-covered services.

Under the demonstration, hospitals that change their licensure status from a hospital to an MAF are offered Medicare payments equal to Medicare's share of reasonable outpatient and inpatient costs. As illustrated in Table I.1, which summarizes the key requirements for MAFs, the only required limitation is that lengths of stay be restricted to a maximum of 96 hours. MAFs are required to maintain 24 hour emergency-room capacity and minimum clinical laboratory and pharmaceutical services. Converting facilities are, however, allowed to offer RN staffing for only 8 hours a day. They are also permitted to operate with only a mid-level practitioner on site and to cover their emergency rooms with on-call RNs within 20 minutes.

An important feature of the MAF demonstration is that each facility must apply individually and be approved first by the state and then by HCFA. Each is required to obtain a certificate of need (CON) from the state prior to relicensing. To be accepted into the demonstration program, MHREF must make a case to HCFA and the Office of Management and Budget that the costs of the waiver will not materially exceed the costs of providing Medicare and Medicaid services without the waiver. Facilities receive no federal planning or implementation grants, and the entire project is run by a private-sector entity on annual HCFA grants of less than \$100,000. Since 1988, HCFA has paid MHREF approximately \$600,000 under a cooperative agreement to administer the MAF demonstration project.

The criteria for designation listed in Table I.1 describe a flexible model for a "frontier hospital" designed to serve remote and sparsely populated communities. Some 40 hospitals in Montana meet

TABLE I.1
MEDICAL ASSISTANCE FACILITY (MAF) REQUIREMENTS

Criteria for Designating Facilities

- Be located in a county with fewer than six residents per square mile or located more than 35 road miles from the nearest hospital
- Submit and be granted a certificate of need by the state, and be certified as a demonstration site by HCFA

Service Criteria

- Make emergency medical services available on a 24-hour basis with at least a registered nurse on call within 20 minutes
- Limit patient stays to no more than 96 hours (unless transfer precluded by emergency conditions)
- Staff the facility with at least one physician, a nurse practitioner or physician's assistant who will be available within one hour
- Maintain pharmaceutical and clinical laboratory services adequate to the needs of patients

Referral Relationships

- Maintain written agreements with other hospitals and providers to assure the appropriate range of services

Personnel/Staffing Criteria

- Maintain emergency service coverage within 20 minutes
- Have a registered nurse on duty at least 8 hours a day

Medicare Reimbursement

- Facility-wide reimbursement of reasonable costs, excluding distinct part units
-

these criteria, and in the first year of the demonstration, 27 facilities deemed most likely to benefit were informed of the new program and invited to participate. As indicated in Table I.2, which lists the chronology of facility conversions, the first MAF began operation in Circle, Montana, in December 1990. Two hospitals converted in 1991, two more in 1992, one in 1994, and there has been one conversion to date in 1995. There are now seven MAFs, and two more hope to reopen by the end of 1995--a facility in Big Timber that closed in 1993 has received a CON and plans to reopen in September, and a hospital in White Sulphur Springs that submitted a state CON application in March.

The data for 1993 indicate sparse use of acute inpatient beds. Six of the eight MAFs in Table I.2 admit less than one patient per week. Two facilities, Roosevelt Memorial in Culbertson and Teton Medical Center in Choteau are larger, but nevertheless have an average daily census of only one patient. As envisioned by the demonstration designers, MAFs are very small hospitals serving small, isolated populations, and the number of MAF conversions compares favorably to the total number of operating RPDs in the seven study states.

C. THE EACH-RPD PROGRAM

As the MAF program was being developed in Montana, provisions of the Omnibus Budget Reconciliation Act of 1989 (OBRA-89) authorized the creation of the EACH program. This report focuses largely on the EACH-RPD program because it operates in more than one state, has not (like the MAF program) been evaluated, has greater federal funding, and features the unique aspect of interfacility network development as an integral part of the program. The EACH program consists of two main components:

1. A permanent operating program that establishes the RPD as a new type of health care facility and the EACH as a new hospital category
2. A grant program that supports the efforts of states and hospitals in developing and implementing the model according to federal guidelines and state needs

TABLE I.2
MAF CONVERSIONS

Facility	Conversion Date	Number of Discharges ^a	
		1989	1993
McCone County (Circle)	12/18/90	94	32
Garfield County (Jordan)	5/17/91	Closed	14
Dahl Memorial (Ekalaka)	5/17/91	Closed	24
Prairie Community (Terry)	1/1/92	23	31
Roosevelt Memorial (Culbertson)	11/20/92	273	121
Granite County (Philipsburg)	3/16/94	55	18 ^b
Teton Medical Center (Choteau)	2/20/95	279	131 ^b
Sweet Grass Community Hospital (Big Timber)	Projected 9/1/95	282	37 ^b
Mountain View Memorial Hospital (White Sulphur Springs)	Projected 1/1/96	114	91 ^b

^aDates for discharges are for fiscal reporting years which vary by hospital.

^bDischarges in 1993 prior to MAF conversions. Granite County was closed for part of the year. Sweet Grass closed in 1993 and its 37 discharges are not prorated to 12 months. It will reopen as Pioneer Medical Center following renovations.

HCFA's Office of Research and Demonstrations manages the program, which is being implemented in seven states: California, Colorado, Kansas, New York, North Carolina, South Dakota, and West Virginia. The EACH program is intended to ensure the availability of primary care, emergency medical services, and basic acute inpatient services through a limited-service hospital linked to a network that includes at least one supporting hospital. Initial program implementation was limited to seven states.² Each of the seven states and potential study hospitals received grants from HCFA to help them implement the program. The first awards were made to states and hospitals in September 1991. One month later, the proposed operating rules for the EACH-RPCH program were published, and comments were sought. The rules were finalized in May 1993, and the first RPCH was certified in August 1993.

In the 20 months between the publication of the proposed rules and the publication of the final rules, the EACH-RPCH state grantees met to discuss the changes they would like to see made to the law to improve program effectiveness. The grantees drew up a list of technical amendments, which after a two-year delay were passed in October 1994.³ The resulting program goals and requirements are explained in this section. Also discussed are the participating states and hospitals, the development of EACH program policy, and the role of the Alpha Center in the program.

1. Program Goals and Requirements

The goals of the EACH program were neither clearly delineated in the statute nor discussed in the conference report that accompanied the statute. In the absence of formal articulation of congressional intent, program goals initially had to be inferred from several sources: (1) summary

²There is also provision for 15 independent RPCHs in nongrant states that has not yet been implemented.

³The technical amendments are discussed in Section 4. They were initially part of a \$27 billion tax and urban aid bill that passed Congress but was vetoed by then President Bush on election day, 1992. These amendments were subsequently incorporated as part of the 1993 budget legislation but were dropped on procedural grounds. They were then added to the House Ways and Means Committee's health reform bill in 1993.

statements by HCFA in the documents soliciting the evaluation contract and program applications from states and hospitals, (2) statements of a congressional staff member who was instrumental in developing the legislation that authorized the EACH program, and (3) the specific legislative requirements that govern program participation and the purposes for which the grants could be used. In its summary of the final program rule, HCFA clarified that the rules "are intended to promote regionalization of rural health services in grant States, improve access to hospital and other health services for rural residents, and enhance the provision of emergency and other transportation services related to health care."

In contrast to the law's silence on program goals, OBRA-89 very specifically established requirements and incentives for program participation. Under the program, rural hospitals that convert to RPOHs are offered some regulatory relief from Medicare. To comply with the RPOH requirements, a rural hospital must agree to limit its services within federal and state parameters. It must also participate in a rural health network that includes a designated EACH. Table I.3 summarizes program requirements during most of the study period (prior to the October 1994 amendments to the EACH-RPOH program).

2. Participating States and Grant Cycles

A key feature of the EACH program is the state's role in program development and implementation. To participate, states must have been selected to receive EACH program grants, must have developed or must be developing a rural health care plan in consultation with the hospital association of the state and rural hospitals in the state, and must designate (or be in the process of designating) rural nonprofit or public hospitals within the state as EACHs and RPOHs. Before EACHs and RPOHs are designated by HCFA, the state must approve the facilities' applications for designation and assure HCFA that the plans of the facilities receiving EACH-RPOH grants are consistent with the state's rural health care plan. While states may designate only those hospitals that meet federal eligibility requirements as EACHs and RPOHs, states may add their own requirements

TABLE I.3

RURAL PRIMARY CARE HOSPITAL (RPCH)
FACILITY REQUIREMENTS

Criteria for Designating Facilities^a

- Be located in a rural area (an area outside a metropolitan statistical area) or in an urban county whose geographic area is substantially larger than the average area for urban counties and whose hospital service area is similar to the service area of hospitals located in rural areas (OBRA-90)
- Comply with Medicare hospital conditions of participation at the time it applies or have been closed for not more than one year prior to the application date for RPCH designation (OBRA-90)
- Participate in the network's communication and data sharing system

Service Criteria^b

- "Make available" 24-hour emergency care
- Agree to cease providing inpatient care, except as specified below:
 - Not more than 6 inpatient beds
 - Temporary inpatient care for periods of 72 hours or less (unless a longer stay is required because transfer to a hospital is precluded due to inclement weather or other emergency conditions) to patients who require stabilization before discharge or transfer to hospital
- May maintain swing beds
- Have a physician, physician's assistant, or nurse practitioner available to provide services, routine diagnostic services (including clinical lab services), and to dispense drugs and biologicals in compliance with state and federal law

Linkages and Referral Relationship Criteria^c

- Enter into agreements with EACH for the referral and transfer of patients, where EACHs are:
 - Located in a rural area
 - Located more than 35 miles from any other EACH rural referral center of referral center located in an urban area
 - Meets other geographic criteria imposed by the state and approved by the Secretary of Health and Human Services
 - Have at least 75 inpatient beds or be located more than 35 miles from any other hospital (the Secretary may waive these restrictions)

TABLE I.3 (continued)

- Agree to participate in the network's communication system including electronic sharing of patient data, telemetry, and medical records if the network operates such a system
- Agree to receive emergency and medical backup services from the EACH and have EACH staff privileges for its physicians

Personnel/Staffing Criteria

- Meets staffing requirements of other rural hospitals, except for the following:
 - Need not meet standards for hours or days of operation, as long as it meets requirement to provide 24-hour emergency care
 - May furnish the services of a dietician, pharmacist, laboratory technician, medical technologist, or radiological technologist on a part-time, off-site basis
 - May allow a physician's assistant or nurse practitioner to provide required inpatient care subject to oversight by a physician

Medicare Reimbursement

- Inpatient RPOCH services will be covered under Medicare Part A and defined the same as inpatient services delivered in a hospital. Payment will be made only if a physician certifies that services had to be furnished immediately on an inpatient basis.
 - For first 12-month cost reporting period: a per diem payment to be made based on the reasonable costs of the facility
 - Later periods: payments will be the per diem payment amount for the preceding 12-month cost-reporting period, increased by the PPS update factor for rural hospitals
 - On or after January 1, 1993, a prospective payment system to be used for inpatient RPOCH services
 - Outpatient RPOCH services will be covered under Medicare Part B, for services defined as hospital outpatient services
 - Before 1993, facilities may elect either of two payment methods:
 - (1) a cost-based facility service fee with reasonable charges for professional services billed separately
 - (2) an all-inclusive rate combining both the professional and facility service components
 - By January 1, 1993, a prospective payment system for outpatient RPOCH services is to be developed
-

SOURCE: OBRA-89, except as noted.

TABLE I.3 (continued)

^aOBRA-90 contained amendments to OBRA-89 that included RPCH eligibility for hospitals that closed within a one year period prior to the application date for RPCH designation and urban hospitals located in a county whose geographic area is substantially larger than the average area for urban counties and whose hospital service area is similar to the service area of hospitals located in rural areas.

^bThe Secretary has authority to waive the 6-bed, 72-hour service limits.

^cApplies to RPCHs that are members of a rural health network. The Secretary may also designate up to 15 RPCHs outside grantee states that would not meet rural health network requirements as defined in the law.

as well. The grant funds provided to states by the program may be used to carry out the program, and develop and support communications and emergency transportation systems.

HCFA subsequently defined Type A and Type B states. States that applied in fiscal year (FY) 1991 for Type A state grants would have already identified specific networks and would be ready to implement their programs. Type B states would use their grants for developing rural health care plans, identifying networks, and considering the program's applicability to their states. HCFA reviewed 21 state applicants and awarded a total of \$2 million in grants to five Type A states--California, Kansas, North Carolina, South Dakota, and West Virginia--and to two Type B states--Colorado and New York. In FY 1992, the seven states had an opportunity to apply for additional grant funding and were subsequently awarded a total of \$1.75 million to continue program development. Type B states (in which no facilities could receive grants the first year) could also submit facility applications for consideration. A total of seven new networks were funded in the Type B states (six in Colorado and one in New York). HCFA made no grant awards in FY 1993 but in 1994 awarded the states additional funds of \$1.81 million, bringing the total state grant awards for the program to \$5.56 million for 1991-1994.

3. Participating Hospitals

In addition to establishing the EACH program as a permanent alternative model of service delivery for eligible rural hospitals, OBRA-89 provided for grants to facilities of up to \$200,000 to support their conversion to EACHs, RPCHs, or other members of a rural health network. In FY 1991, HCFA awarded grants to 31 potential RPCHs and 20 potential EACHs (comprising 20 rural health networks). The program grew through additional grant awards in FY 1992 and again in 1994 to a total of 52 potential RPCHs and 35 potential EACHs (comprising 35 rural health networks). In each subsequent grant cycle after the first, EACH and RPCH grantees could apply to receive

supplemental funding up to a maximum total funding of \$200,000. In all, participating EACH and RPCH grantee hospitals were awarded a total of \$16.13 million, as shown in Table 1.4.⁴

These federally funded participants are the main focus of the evaluation, although participants outside the federal program have played an important role in some areas and will be discussed in the context of the state programs. These unfunded participants are considered participating hospitals by the program states. They are not in the federal program because they were ineligible to be an EACH or a RPCH, or were denied federal funding because their application was deemed unacceptable by the grant review panel.

Applicants were not asked to commit to converting as a condition for being awarded a grant. As of this writing, a majority of the participating grantees had not converted to certified RPCHs or EACHs. As shown in Table I.5, only eight hospitals had become certified RPCHs by the end of 1994. Conversely, hospitals were not required to have received a grant to become certified as a RPCH; in fact the first two of the nine certified RPCHs were not initially awarded grants. The pace of RPCH conversions has been accelerating. As indicated in Table I.6 and detailed in Appendix A, the number receiving certification has risen from one in 1993 to seven in 1994, with six more requests for certification surveys by March 1995. In total, one-quarter of the RPCH grantees (13 hospitals) plus two hospitals that were not grantees have been certified or requested certification to be RPCHs.⁵

⁴Two RPCH grantees and two EACH grantees have not been active program participants because they have not spent any of the grant funds awarded to them, but they never formally withdrew from the program. For a listing of all participating hospitals, see Appendix A.

⁵If one considers only conversions or planned conversions for 1991 and 1992 grantees (since it may be too soon for 1994 grantees to have fully considered the program), this figure rises to roughly one-third of grantees who have sought certification as RPCHs.

TABLE I.4
EACH-RPCH GRANT AWARDS TO STATES AND FACILITIES

	Fiscal Year			Total
	1991	1992	1994	
Number of Grant Recipients				
States	7	7	7	7
RPCHs	31	23	19	59
EACHs	20	20	8	37
Number of New Grant Recipients				
States	7	0	0	7
RPCHs	31	13	15	59 ^a
EACHs	20	11	6	37 ^b
Amount Awarded (in millions)				
States	\$1.75	\$2.00	\$1.81	\$5.56
RPCHs	4.85	2.99	1.98	9.82
EACHs	3.15	2.33	0.83	6.31
Total	9.76	7.32	4.61	21.69

^aSeven of these RPCH grantees, however, withdrew from the program.

^bTwo of these were new support hospital grantees replacing earlier grantees that withdrew from the program.

TABLE I.5
RPCH CONVERSIONS

Hospital	Conversion Date	Admissions	
		1990	1993
Faulk County Memorial Hospital (Faulkton, SD) ^a	11/93	337	183
Broadus Hospital (Philippi, WV) ^a	1/94	1,365	621
Webster County Memorial Hospital (Webster Springs, WV) ^b	1/94	513	256
Grisell Memorial Hospital (Ransom, KS) ^b	3/94	162	165
Ellinwood District Hospital (Ellinwood, KS) ^b	10/94	283	229
Gettysburg Medical Center (Gettysburg, SD) ^c	10/94	344	334
Cedar Vale Regional Hospital (Cedar Vale, KS) ^c	12/94	N/A	210
Sea Level Hospital (Sea Level, NC) ^b	12/94	Closed	Closed
Lane County Hospital (Dighton, KS) ^b	1/95	194	135
Ashland District Hospital (Ashland, KS) ^d	1/95	91	42

^aHospitals were not EACH-RPCH grantees at the time of conversion. Faulk County Hospital received a small grant in 1994.

^bOriginally 1991 grantees.

^cOriginally 1992 grantees.

^dOriginally 1994 grantees.

TABLE I.6
NUMBER OF CERTIFIED RPCHS

	Certified RPCHS				Total
	1993	1994	Converted or Requesting Certification before March 1995		
			Converted	Requested	
Total	1	7	2	5	15
California	0	0	0	0	0
Colorado	0	0	0	0	0
Kansas	0	3	2	2	7
New York	0	0	0	1	1
North Carolina	0	1	0	1	2
South Dakota	1	1	0	0	2
West Virginia	0	2	0	1	3

Seven of the RPDH awardees, all in Kansas, refused their grants, but to date no network has discontinued participation.⁶

4. Policy Development

Pursuant to the law, HCFA issued proposed program regulations for public comment on October 25, 1991 (*Federal Register*, p. 55382). Although the draft regulations closely follow the legislation establishing the EAPH program, they elicited many concerns from providers and state policymakers. Because the five Type A states had to identify interested hospitals and plan their programs before even the draft regulations had been issued, they had invested considerable time and effort before receiving their grants. States report that, despite language in the grant application package outlining the legislated requirements, they believed that the program would eventually have greater flexibility and would thus be more attractive and more broadly applicable to small rural hospitals. Although the Type B states did not have to identify specific hospitals for the program, they were also primarily interested in a broader program.

In response to the draft regulations, the program states sent a joint letter to HCFA specifying their common concerns regarding five issues as critical to the program:

1. **Definition of a Rural Primary Care Hospital.** The states objected to language in the proposed regulations that defined RPDHs as entities that would provide inpatient care only when needed on a "temporary and immediate" basis. They argued that since RPDHs are restricted by the 6-bed and 72-hour limits, they should not be further restricted in the type of care they provide.
2. **Flexibility Issues.** While the states agreed with the intent of the program to downsize acute care capacity and limit inpatient services, they proposed an average rather than a strict maximum of six acute patients and requested permission to use Peer Review Organization (PRO) concurrent review or their own systems to grant exceptions to the 72-hour limit on lengths of stay.

⁶The final status of a few networks is in doubt. Two networks have been placed on administrative hold (that is, they may not spend grant funds) because the eligibility of one of the grantees for the program is in question. Two RPDH grantees currently in the program are closed hospitals planning to reopen as RPDHs, and one other was closed for several months during 1992.

3. *Swing Beds.* The states proposed that swing beds not be limited in RPCHs except by current capacity and availability of appropriate staffing. (The draft regulation limited total acute care plus swing beds to 12.)
4. *Lower of Costs or Charges.* The states argued that the statutory requirement that "reasonable costs" be the basis for RPCH reimbursement should not be interpreted as the lower of costs or charges (which in some RPCH areas are below costs).
5. *Grant Repayment.* The states explained that many hospitals were interpreting RPCH payment language in the proposed rule to mean they would essentially be required to pay back Medicare twice for the grant funds, first in the cost base year and then long-term in their per diems. To avoid this problem, they stated that it is essential for ongoing operating costs and costs associated with capital projects supported by grant funds to be interpreted as allowable costs for inclusion in subsequent payment rates.

In addition to sending a letter to HCFA, the states sought legislation to alter the program requirements because many of their key concerns could not otherwise be addressed. The legislation (contained within H.R. 11, a \$27 billion tax and urban aid bill) was initially passed just prior to Congress' adjournment but was vetoed by then-President Bush because of concerns not related to the EACH-RPCH program. The EACH-RPCH legislative amendments were reintroduced with the same language when Congress reconvened, but the provisions of bill H.R. 21 were ultimately excluded from subsequent appropriation bills. Finally, in October 1994, the legislation was passed and introduced the following changes to the program:

- Rather than a 72-hour length-of-stay limit on all inpatient care at RPCHs (except in emergencies), each patient's physician must certify that the patient may reasonably be expected to be discharged or transferred to another hospital within 72 hours of admission, and the average length of stay at a RPCH must be 72 at most.
- Urban hospitals may be designated as EACHs.
- Hospitals in states adjoining the participating states may participate in networks of the states receiving grants.
- RPCHs may retain more beds for extended care services.
- RPCHs are generally prohibited from providing surgery or any other service requiring the use of general anesthesia.

Final program regulations, which were issued on May 16, 1993--over a year before the above-mentioned legislative changes were made--closely follow the draft regulations (*Federal Register*, May 26, 1993, p. 30630) and thus did not significantly change the program such that it would be of broader interest to rural hospitals, as the states and many hospital grantees had hoped. For example, many of those who commented on the draft rules believed that HCFA had the authority to waive certain provisions of the bill, such as the 72-hour limit on inpatient length-of-stay for RPCHs or the limit of 6 acute care beds, and that HCFA should exercise this authority to allow maximum flexibility in applying program limits. However, HCFA interpreted its waiver authority more narrowly, believing itself to be precluded from broadly waiving the program limits. The agency further stated:

We believe the minimal requirements we have established for an EACH and an RPCH give these facilities adequate flexibility to organize themselves and provide services as they see fit. We also are concerned that extensive use of the authority to designate facilities not meeting statutory criteria could discourage compliance with those criteria, and that it also could lead to wide variations in the types of facilities designated as an RPCH. This would make it more difficult to survey these facilities against national health and safety standards and thereby assure Medicare beneficiaries a uniform quality of care.

Thus, although legislation that slightly loosened program requirements was eventually passed, the EACH program was defined narrowly according to OBRA-89 and HCFA draft, then final, program rules for nearly all of the program period covered by this evaluation. Throughout this period, the possibility of legislative change was uncertain. HCFA has not yet issued new rules to incorporate the 1994 legislative changes. Although uncertainty about final program requirements and legislative changes slowed and complicated program implementation, many facilities were still able to make positive changes.

5. The Robert Wood Johnson Foundation's Technical Resource Center

In summer 1992, the Robert Wood Johnson Foundation, with HCFA's support, awarded a grant to the Alpha Center to serve as a technical resource center for the EACH-RPCH program. The center's objectives are:

- To facilitate interaction and communication among the project directors of the EACH program such that information, ideas, and methods are shared and techniques are transferred from site to site
- To provide technical assistance on the organization of rural health networks and the development of EACH and RPCH facilities

To meet these objectives, the center has conducted several workshops for state and federal officials responsible for implementing the program, and one larger meeting that also involved grantee representatives. Along with the joint efforts by the seven grantee states to encourage new authorizing legislation, these workshops facilitated the exchange of ideas among the seven states.

E. EVALUATION ISSUES

The evaluation of the EACH program and MAF demonstration focuses on the implementation experience for states and hospitals, and the potential or apparent early impact of the programs on access to care, quality of care, and financial status. It also includes a comparison of the MAF experience with the EACH-RPCH program and an overall evaluation addressing program performance and cost-effectiveness as well as program development and expansion. Given the delays in program implementation, we were not able to thoroughly address issues related to the outcomes of RPCH conversion.

1. State Implementation

The evaluation is designed to describe state goals and strategies for the program, identify features associated with the most active programs, and assess how successful states have been in meeting their goals. Two issues will be especially important if the program is expanded:

- Whether an active, externally funded implementation coordinator is needed to support community-level participation
- The type of technical expertise that states require and how the need for such expertise has been met

2. Hospital Implementation

Encouraging change at the hospital level is a key purpose of the program. We therefore describe what changes have occurred at participating small hospitals and the role of the EACH in supporting RPCH operations. Changes in the structure and scale of operations at the RPCH or MAF, changes in utilization, and changes in capacity are the key types of changes assessed. The types and functions of rural health networks that go beyond an EACH-RPCH relationship but were developed under the program are also addressed. Because the program includes grants and exists within a federal framework, we examine the role of grants in hospital participation and how well the federal government implemented the program for converting hospitals.

3. Access to Care

The access component of the evaluation has to do with how important RPCH grantees and MAFs are in providing local residents with access to health services. We explore this issue by describing the participating facilities in terms of their distance from other sources of care and their role in inpatient care relative to neighboring hospitals. We also assess whether participation has effectively increased the service capacity of participating hospitals such that local residents have greater access to care.

4. Quality Assurance

An obvious concern in the creation of limited-services is that the quality of care meets prevailing standards and that it is, at a minimum, comparable to the quality of care in small rural hospitals. Since a thorough review of patient outcomes is beyond the scope of the evaluation, the emphasis here is on the adequacy of the structures established for quality assurance. We describe how

converting hospitals organize quality assurance and what has changed as a result of the program. The role of EACHs in supporting quality assurance is examined. To the extent that our information allows, we also discuss whether the limitations on the RPCH effectively reduce the complexity of the inpatient caseload.

5. Financial Impact

The economic viability of the program for facilities and insurers is critical to its success. Economic viability depends on the financial advantages and disadvantages of becoming a RPCH, and on whether the program reduces hospital costs or otherwise changes financial status. It also depends on the extent to which EACHs benefit from the program and on the factors that determine how much they benefit. The costs of establishing and operating a network, and the elements of start-up and operating costs of the program to Medicare also influence financial impact.

6. The MAF Experience

A comparison of the MAF experience with the EACH-RPCH program provides insight into possible modifications for a future expansion to other states of a limited-service hospital model. This part of the evaluation involves comparing the MAF and EACH-RPCH programs in terms of features, advantages, and disadvantages.

7. Overall Evaluation

The six questions that define the overall evaluation concern program performance, cost-effectiveness, and program development.

1. How clearly were program objectives defined on the federal, state and local levels?
2. How well were these objectives met?
3. What have the programs cost to date?
4. What key factors influence the effectiveness of the initiatives?

5. How are the MAF and EACH-RPCH programs evolving as new waves of participating hospitals enter?
6. What is the potential for program expansion?

F. METHODOLOGY AND DATA SOURCES

The evaluation draws on a wide variety of primary and secondary data sources, including: (1) facility progress reports completed by grantees, (2) information from site visits made by evaluation team members to state agencies and hospitals, and (3) secondary data from computerized files.

1. Progress Reports

States and hospitals participating in the EACH program have been asked to report regularly on their use of grant funds, grant-funded activities, and changes in hospital operations potentially related to the EACH program. Reporting forms were designed to help us track the progress of grantees in implementing the program and to provide operational and "environmental" information needed for the evaluation. The reporting procedure for states differed slightly from that for hospitals. All seven state grantees filled out forms covering each six-month interval of the program. The reports include brief narratives of project progress, problems, and spending. Closed-category questions cover aspects of the policy, health services, and economic environment in each state.⁷ EACH and RPCH grantees were asked to fill out a background report covering services, staffing, outpatient and inpatient operations, financial status, character of their service areas, and relationships with local physicians and other providers. They were also asked to describe their relationship with each other prior to the grant.⁸ Given the late start of the program in all hospitals, respondents were to describe their background situation as of December 31, 1991 and were asked to fill out only one report on program activities and expenditures as of the end of the first year, September 30, 1992. Grantees were asked

⁷Copies of the progress reports and data collection procedures are available in Felt and Wright (December 1991).

⁸The background report form, procedures, and results are described in Felt, Sweetland, and Wright (1992).

to complete additional reports every six months. Data in these reports reflect facility and program characteristics up through March 1994 (see Appendix B for details).

2. Site Visits

Three rounds of site visits were conducted to assess the development and implementation of the EACH programs on the state and local levels. The first round was a series of one-day interviews in seven state capitals during March and April 1992. The schedules were tailored to each state program but always included interviews with the state program director, key program staff, a hospital association representative, and at least one other key individual from outside the government.⁹ The second round of site visits occurred during November and December 1992. People interviewed previously were re-interviewed, and at least one EACH-RPCH network in each state was visited. This round of visits included one day at every hospital and covered eight networks (two in Kansas) consisting of ten RPCHs, eight EACHs, and one nongrant network member. The third round of site visits was conducted in May and June 1994. We visited those involved in the statewide program (including program staff, the hospital association, and staff in related agencies or organizations) and the RPCHs or RPCH grantees that had converted or that were believed by us and the state program directors to be most likely to convert to RPCHs in the near future. Thus, we visited all five of the RPCHs that had been certified or surveyed at the time, plus three other RPCHs believed likely to convert.¹⁰ In most cases, we were also able to meet with the relevant staff of the associated EACHs and network members. At the RPCHs, we interviewed both administrative and clinical staff, including the administrator, financial personnel, physicians, nurses, and emergency room staff. To keep apprised of program implementation and issues between the second and third rounds of site

⁹The methodology and results of the first round of site visits are reported in Felt and Wright (1992).

¹⁰Since the site visits, one of the three has requested to be certified as a RPCH.

we conducted telephone interviews of about two hours each to state program directors during spring 1993.

In both rounds of site visits involving hospitals, the facilities were a purposive sample selected with the help of the states' program directors. Since the number of hospitals significantly involved in considering RPCH conversion on the local level was quite limited during 1991-1994, we sought to maximize our understanding of the conversion process by selecting the networks where conversion was deemed most likely. The information drawn from the site visits therefore reflects an atypical situation in which facility characteristics and the work of individuals were judged by state personnel to be most conducive to the RPCH model.

3. Secondary Data

To supplement the detailed primary data collected from a subset of grantee hospitals, the evaluation team developed a statistical profile of all EACH program grantee hospitals, facilities participating in the MAF demonstration, and a comparison cohort of similar small facilities. These profiles focus on RPCHs rather than the larger EACH facilities. Hospitals and their patients, service areas, and relative role in delivering health care are characterized using detailed computerized files. Background data on the hospitals are also drawn from standard published services such as the 1990 Census and annual issues of the American Hospital Association's *Guide to the Health Care Field*, as well as several datasets. The results of the statistical analysis appear throughout the report but form the core of Chapters V and VII. Starting with HCFA files, the latter include:

- **Medicare Cost Reports, FY 1989-FY 1992.** These data are drawn from the HCRIS (Hospital Cost Report Information System - H180 Extract) and provide information on patient volume, service mix, and hospital financial status. These records were supplemented by hard copies of the most recently available cost reports for Montana's MAF facilities.
- **Market Area File, 1988-1989.** This file, created by HCFA, uses MEDPAR hospital discharge records for all Medicare patients. The Market Area File enumerates each hospital's discharges by patients' home zip code and was used to define hospital service areas as well as to calculate the percentage of Medicare inpatients

from those areas that were discharged from the RPDH grantees, MAFs, and comparison hospitals.

- *MEDPAR, 1990-1992.* This file details all Medicare discharges, and is critical for profiling case mix, reimbursement and length of stay for participating and comparison hospitals. Also, it is the basis for calculating source of treatment in analyses of market share. A related but separate file contains all hospital outpatient department claims.
- *HCFA's Payment Impact File, 1994.* This file is organized by hospital and contains data used to estimate Medicare PPS payments, including PPS rates, hospital specific rates, and adjustments to these rates (e.g. wage index values and disproportionate share status). For this project, we used the data primarily for our simulation of Medicare payments to EACH hospitals.
- *Denominator File, 1992.* This research oriented-file contains person-level data on all Medicare beneficiaries, including their Medicare ID, zip code location, and other demographic and Medicare coverage information. We used this data to generate a list of Medicare beneficiaries that live in the zip codes constituting market areas of the RPDH, MAF and comparison hospitals.
- *Area Resource File, 1992.* This dataset is a convenient source for selected county characteristics drawn largely from 1990 census data. It was supplemented by data on income and poverty drawn directly from the 1990 census.
- *American Hospital Association's Annual Survey, 1993.* This is an invaluable source of information on hospital services utilization and capacities. The file also links individual hospitals to their county FIPS code.
- *Small Isolated Rural Hospitals, 1988 Data File.* An earlier study for the Prospective Payment Assessment Commission (Wright, 1988) resulted in a data set that listed for all rural hospitals key information on their characteristics, particularly distance in road miles to their nearest neighbor.

Data on the service areas and counties of RPDH grantees were presented in an earlier report (Felt and Wright 1992).

4. Comparison Cohort

A key component of any evaluation is the definition of a standard to which the experience of hospitals participating in the EACH-RPDH and the MAF initiatives will be compared. A single standard of comparison is not possible because limited-service hospitals and their supporting networks

are new entities to which other types of facilities are not strictly comparable. The study therefore uses three different types of comparisons to capture different issues and perspectives.

First, we compare all small rural hospitals under 50 beds to hospitals participating in the MAF and EACH-RPCH initiatives. This provides the context of the national trends in which the limited-service hospital programs are operating. This approach also allows some investigation of the grant program's ability to target facilities and communities most likely to benefit. A second set of contrasts are drawn between hospitals participating in the programs and a comparison cohort of small hospitals selected to mirror the scale and environment of participating hospitals. This comparison controls for pronounced regional and environmental differences; and is useful for identifying factors related to the decision to participate. The third comparison examines the difference between those who are and are not converting among EACH-RPCH grantees. This is useful in understanding the impact of program participation and network development on the decision to convert licensure status.

Of the three, the comparison cohort took some effort to construct. The evaluation team identified a cohort of 80 small rural hospitals by selecting two comparison hospitals for each RPCH grantee and MAF on the basis of average daily census (i.e., number of inpatients per day), location, and isolation. Appendix A lists the comparison sites, describes the selection process, and compares the two groups for a key set of characteristics covering the size, operations, and community profile of the hospitals.¹¹

Although this report uses statistical information, it is primarily a process analysis of the implementation of two experiments with limited-service hospitals. The core of the analysis is drawn from qualitative data collected during the site visits. The following seven chapters distill the initial experience in Montana and the seven EACH-RPCH states. Their pioneering efforts, the frustrating

¹¹As will be evident from the analysis in Chapter V, the selection process did not yield a completely comparable cohort. We therefore introduce statistical controls for systematic differences in size and location. The restricted number of observations, however, limits the ability to detect significant differences.

obstacles they faced, and their notable accomplishments are relevant to decision-making on the future of health care in small-town America.

II. IMPLEMENTATION OF RURAL HEALTH NETWORKS

A primary goal of the EACH-RPCH program is to encourage the development of rural health networks that may reduce fragmentation in rural health services, eliminate redundant services, and better support limited-service rural hospitals. To assess network development, we relied on two sources of data. First, background information on facilities and their monitoring reports provide detailed, self-reported data on the initial linkages between the RPCH and EACH grantees, and on changes that occurred over the program period. Second, site visits in spring/summer 1994 provide detailed information for case studies on eight rural health networks with EACH and RPCH grantees. Data collected during these visits builds on an earlier round of site visits to some of the same networks. This chapter reviews the goals of network development and documents our analysis of (1) the first three years of the program as described by all grantees in their monitoring reports and (2) case study data from eight networks. Figure II.1 maps the EACH-RPCH networks currently participating in each state.

A. THE GOALS AND CONCEPT OF RURAL NETWORKS

Efforts to encourage rural health networks are aimed at creating a more rational local health care delivery system largely by (1) coordinating services that are currently fragmented and (2) cooperatively strengthening small-scale providers. In theory coordination should lead to lower overall costs and better quality care. The EACH concept seeks to strengthen small, isolated facilities with a flow of technical assistance and increased clinical and administrative linkages. The EACH-RPCH relationship can also act as a the springboard for a multi-provider effort that would replace mutual suspicion and competition with joint planning and support. In other words, although the program specifies "horizontal" networks between large and small hospitals, some state and community participants envision an even broader "vertical" network connecting different provider types. Such cooperative networks are a long way from risk-bearing entities capable of competing for managed

FIGURE II.1

LOCATIONS OF GRANTEE NETWORKS
IN EACH PROGRAM STATES
(AS OF MARCH 1995)

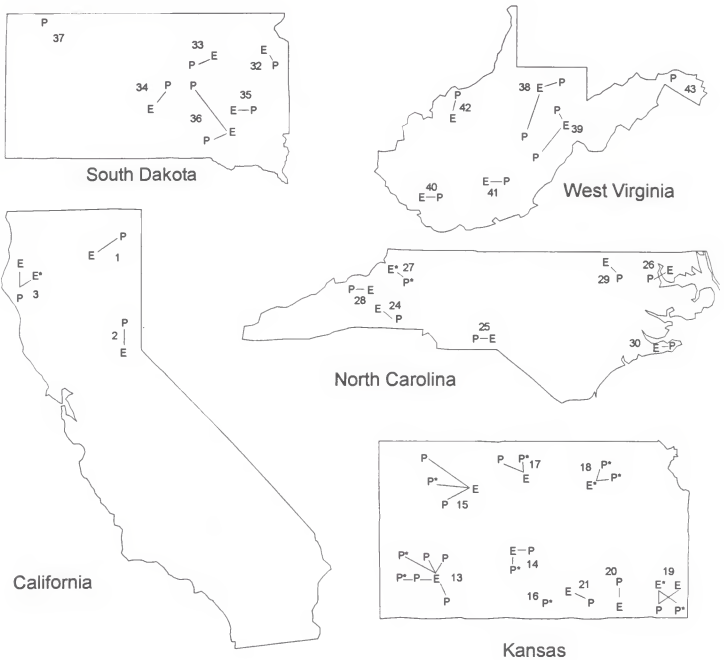
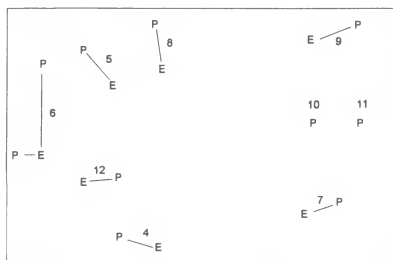


FIGURE II.1 (continued)



Colorado



New York

Legend:

- E denotes an EACH grantee
 - P denotes a RPCH grantee
 - denotes an EACH-RPCH network linkage
 - E*, P* denotes grantee that has withdrawn from program or is inactive
- Numbers refer to networks listed in key found in Appendix A, Table 1.

care contracts (although two networks, one in New York and one in Colorado have considered such a development.) Nevertheless, the potential spread of managed care into rural areas underscores the desirability of improving local coordination.

Even for a simple network between one EACH and a RPCH, developing a truly cooperative relationship involves building intangible ties, such as trust and a shared mission, as well as concrete ties, such as new referral patterns and levels of technical support. As discussed in Chapter I, the EACH-RPCH program does not require specific types of linkages between EACHs and RPCHs except for transfer agreements and a network agreement. Thus, we would expect to find that relationships between facilities vary in intensity--from networks with superficial ties to these with deeper ties that strongly support the RPCH in areas critical to its survival. We would also expect the areas of linkage and activity to vary among the networks. The following analysis of network success addresses both types of variation. If the program is successful, we should find that over the three-year period, the EACH-RPCH networks have both strengthened and increased the number of interfacility connections.

B. ANALYSIS OF PROGRAM-WIDE NETWORK DEVELOPMENT

To assess the degree to which networks developed concrete ties with support hospitals, we looked at self-reports on the level of network activity and calculated whether linkages between pairs of EACHs and RPCHs changed over time.¹ The reports were completed in several waves over the course of each grantee's period of participation in the program. The information was used to assess network activity in two ways--formality of organization and creation of linkages. Formality of organization was judged in terms of whether facilities scheduled regular meetings or had a coordinator

¹Changes were calculated from replies of EACHs by comparing their baseline report with their most recent available report. The time between these two reports differ. An additional limitation is that activities including non-grantee members are not included. In some cases replies reflect that more than one RPCH is paired with a particular EACH. All networks that actively spent some or all of their grants and completed monitoring reports are included in the 32 reported here. For details, see Appendix B.

with time dedicated to network responsibilities. Success in forging links between hospitals was defined in terms of the number of interactions between members. No single indicator gives a complete picture. We address two major questions:

- How active have networks been and how important has the EACH-RPCH program been in fostering this activity?
- What facility characteristics are associated with active networks or stronger EACH-RPCH linkages?

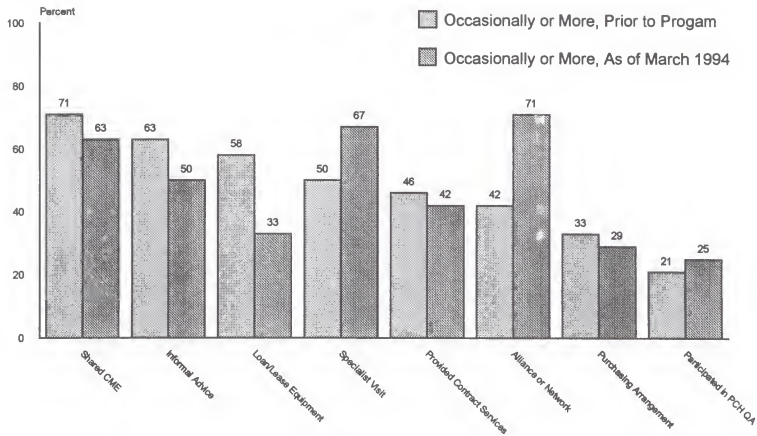
1. Network Activity

EACH-RPCH pairs reported very different levels of formal network organization and degrees of interaction. As of March 1994, the 32 network pairs with completed monitoring reports described their level of network activity as follows:

- Six pairs were not active as organized networks (no regular meetings; no designated network coordinator)
- Fourteen pairs reported informal activity (periodic meetings but no network coordinator)
- Twelve pairs reported formal activity (regular meetings, and a designated coordinator with time set aside for the purpose)

Although only a minority (37 percent) of the grantees appeared to have formed active, formal networks, this indicator may not reflect the actual level of cooperation between EACHs and RPCHs if much of the cooperation takes the form of service linkages between two hospitals. As shown in Figure II.2, we examined this possibility by identifying the services provided by EACHs to their RPCH grantees before and after the program. As might be expected, prior to joining the program, many grantees interacted in the following areas: continuing medical education, informal advice, equipment loans or leases, visiting specialists, contract services, cooperation in an alliance, or quality assurance.

FIGURE II.2
SERVICES EACH PROVIDED TO RPCH
GRANTEES PAST AND PRESENT



Source: Tabulations of EACH-RPCH monitoring report data.

During the program period, however, connections did not uniformly strengthen. Surprisingly, the proportion of grantee hospitals reporting interaction with EACHs dropped in five of the eight areas displayed in Figure II.2. The percentage of RPCH grantees receiving equipment loans or leases from the EACH decreased the most, from 58 to 33 percent of RPCH grantees. This could be due to improvements in the grantees' ability to obtain their own equipment as a result of the grant funds, a different and perhaps larger purchasing alliance, or other factors.

As a group, however, the data do suggest similar or lesser EACH-RPCH ties except in two areas: (1) participation in a consortium, alliance, or network, and (2) visiting specialists. Participation in a consortium, alliance, or network has increased substantially from 42 to 70 percent of EACH-RPCH pairs.² Other literature suggests that small, rural hospitals outside the program were also building networks during this period, so caution is warranted in crediting the EACH-RPCH program with this change. Second, the percentage of RPCHs having visiting specialists from the EACH increased significantly. The potential importance of this change in increasing access to care for RPCH area residents is discussed in Chapter V.

Other methods for analyzing the data from monitoring reports also show that linkages did not measurably increase overall. If we sum across the eight categories in Figure II.2, 75 percent of the EACH-RPCH pairs reported at least two services provided by the EACH before the program. By March 1994, this proportion had increased slightly to over 80 percent. However, the average number of linkages remained steady at about four of a possible eight linkages. About 40 percent of the EACH-RPCH pairs increased the number of linkages, but another 40 percent decreased them.

The monitoring reports also say something about the extent to which networks developed and the program's role in fostering EACH-RPCH linkages. In each reporting period, RPCH grantees

²We paired EACH and RPCH grantees to conduct these analyses for all networks including those that had more than one RPCH. Thus, if a network has one EACH and two RPCHs, the data will calculate changes for two EACH-RPCH pairs, with the same EACH being included twice. This avoids having to create some type of summary network measure that would combine the data of more than one RPCH, a less-preferred method.

were asked to subjectively assess changes in facility operation by noting either an increase or improvement, decrease or adverse change, or no change. This set of questions differs from those in Figure II.2 in that it asks for an assessment of the direction of change and does not involve calculating changes from replies to different waves of monitoring reports.³

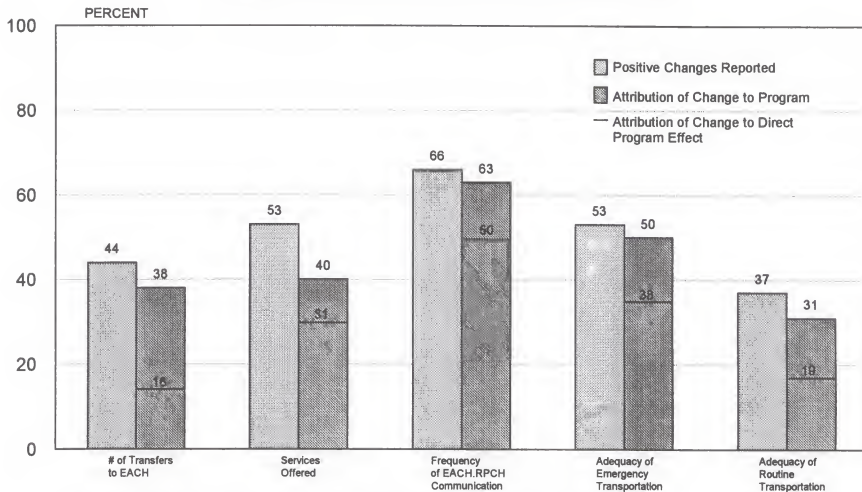
Many RPCH grantees reported more transfers to the EACH and more frequent communication with the EACH (44 and 66 percent, respectively). These outcomes are consistent with closer network relationships under the program (Figure II.3). More frequent communication appears to be largely a result of the EACH-RPCH program. However, it is not clear that the program directly caused much of the increase in transfer cases to the EACHs. As shown in Figure II.3, only 16 percent of RPCH grantees reported more transfers to the EACH *and* attributed this directly to the program. A much higher proportion of grantees reported that the increase in transfers was at least an "indirect" result of the program, but the meaning of an "indirect" effect is difficult to interpret. It is possible that a grantee may have cited an indirect effect if, for example, its physician(s) became more familiar with certain EACH physicians as a result of discussing the program and decided on their own to transfer cases to the EACH instead of to other hospitals, but we cannot conclude this from the data.

Figure II.3 also shows the many positive changes RPCHs reported in three other areas less directly associated with ties to an EACH: number of services offered at the RPCH, adequacy of emergency transportation, and adequacy of routine transportation. Similarly, most grantees reported that these positive changes were at least "indirectly" related to the program, but far fewer reported a direct relationship.

In sum, there is considerable variation in the linkages reported by grantees. Some networks increased their ties; others did not. Though the program increased communication between RPCHs

³Since these questions were asked in each monitoring report, the number of replies differed among respondents. Networks were scored as having a positive change if respondents indicated only positive or neutral changes in all waves of the reports.

FIGURE II.3
OBSERVED CHANGES IN NETWORK INTERACTIONS:
PERCENT REPORTING ANY POSITIVE CHANGE



Source: Tabulations of EACH-RPCH monitoring report data (n=32 networks).

and EACHs through informal and formal networks, the average number of EACH-RPCH ties remained the same. In particular, the monitoring reports indicate that network development does not generally mean that technical assistance and support services have been established, since we did not find increases in the number of EACHs providing informal advice, continuing medical education, loans/leases of equipment, contract services, or purchasing arrangements. Although nearly half of the RPCH grantees increased the number of transfers to the EACH, only a small percentage reported that this was a direct effect of the program. Because a key goal of the program is to develop tangible supports to small, often struggling facilities, it is significant that fewer than half of the grantees reported positive changes in terms of tangible ties as a result of their network relationship.

2. Characteristics Associated with Active Networks

a. Network Characteristics Examined

In this analysis, the dependent variable "stronger linkages" is measured in terms of (1) the presence/absence of an active network structure with regular meetings and a designated network coordinator, and the number of linkages with the EACH in 1994,⁴ (2) improved communications with the EACH, (3) increased transfers to the EACH, (4) EACH specialist visits to the RPCH, (5) contracted services, and (6) loan/lease of equipment. Six facility characteristics were explored to determine if they are associated with more active networks that have stronger linkages: RPCH financial status, EACH financial status, level of network activity, prior linkages, road miles between EACH and a RPCH, and probability of conversion to a RPCH. The following summarizes these six characteristics and their hypothesized relationships to the strength of network linkages:

⁴We asked about eight potential linkages with the EACH (those shown previously in Figure II.2): shared continuing medical education, informal advice, loan/lease of equipment, specialist visits to the RPCH, contract services, alliance or network, purchasing arrangement, and participation in RPCH quality assurance program.

- ***RPCH Financial Status.*** RPCH financial status is measured by subjective self-assessments recorded in the monitoring reports.⁵ RPCH grantees in the greatest difficulty may have the most motivation to strengthen ties to external sources of support. On the other hand, those in the most difficulty may have weak management, which may be less likely to pursue network relationships or see potential benefits from doing so. Alternatively, RPCHs in very poor financial status may be absorbed in day-to-day survival issues, decreasing the time they could devote to network relationships.
- ***EACH Financial Status.*** EACH financial status is measured by subjective self-assessments recorded in the monitoring reports as described for RPCHs. Financially stronger EACH grantees may be more able and thus willing to assist RPCHs in substantive ways. On the other hand, financially weaker EACHs may be more motivated to assist RPCHs in order to obtain EACH designation if becoming designated will improve their financial status.
- ***Prior Linkages.*** Linkages are measured by the number of services the EACH provided at least occasionally to the RPCH grantee prior to receiving program grants. Networks with more prior linkages may have an advantage in developing additional linkages.
- ***Active Network.*** Activity is measured by regular meetings and the presence of a designated coordinator. More active networks presumably should report greater concrete linkages such as specialist visits or services provided by the EACH at the RPCH.
- ***Road Miles Between EACH and RPCH.*** RPCHs that are more physically isolated from their EACH may find it more difficult to forge linkages because of the distance. Alternatively, very isolated RPCHs may need such linkages more and thus may work harder to develop them.
- ***Probability of Conversion to a RPCH.*** This characteristic is measured by the facility's report of how likely it is to convert to a RPCH over the next 12 months. Presumably, those reporting a high likelihood of conversion should be the most committed to the program and therefore be more likely to report expanded ties with the EACH.

⁵Although hospital cost reports were analyzed for other parts of the evaluation, we had cost reports only through 1992. There are actually three measures of financial status in the monitoring reports. In each wave respondents were to report: (1) their current financial status (excellent, good, fair, or poor), (2) the change in financial status since the previous report (severe decline, slight decline, about the same, slight improvement, or great improvement), and (3) observed changes since the previous report (increase or improvement, no change, decrease or adverse change) in the context of judging the impacts of their participation in the program. The first conveys a discrete standing, while the latter two describe movement.

b. Key Findings

Tables II.1 and II.2 show the quantitative results of this analysis. The most important findings from this analysis concern the influence of RPCH financial status on network development, the influence of intention to convert to a RPCH on network development, and the relationship between a formal, active network structure and the development of more concrete linkages.

RPCH Financial Status. RPCH grantees reporting "fair" financial status developed active networks most often; a very weak financial status of the RPCH does not appear to be a strong motivation for the development of linkages between EACHs and RPCHs. The grantees reporting "fair" financial condition at the start of the program appear to most actively develop networks (70 percent reported having regular meetings and a coordinator by the end of the three-year period). Neither the grantees in the poorest condition nor those reporting "good" financial status developed active networks as often (31 percent and 11 percent, respectively). One possible interpretation is that the RPCHs in the poorest financial condition may be focused almost exclusively on day-to-day survival, and those in good financial condition do not feel much of a need for a network. Those with some remaining financial assets may have the ability to devote time to and see advantages in network development.

However, two of the four poorest grantees that did develop active networks reported improved financial status by the end of the period. In fact, the percentage of grantees in active networks that reported "good" financial status at the end of the period improved substantially from the start of the program as shown in Table II.1 (from 8 percent to 42 percent). Those in inactive networks did not similarly improve (35 to 40 percent reporting good status in both periods), but the average self-reported financial conditions for the two groups at the beginning and end of the period were not very different.

A different analysis of the relationship of RPCH financial status to stronger network linkages also supports the finding that there is not a strong direct relationship between poorer financial status

TABLE II.1
DISTRIBUTION OF FINANCIAL STATUS
BY NETWORK ACTIVITY

	Initial Status				End Status			
	Poor	Fair	Good	Total	Poor	Fair	Good	Total
Network Activity								
Active (n = 12)	33 %	58 %	8 %	100	17 %	42 %	42 %	100
Not Active (n = 20)	45	15	40	100	15	50	35	100
All Grantees	41	31	28	100	16	47	38	100

SOURCE: Tabulations of EACH-RPCH monitoring report data.

TABLE II.2

CORRELATIONS WITH CURRENT EACH-RPCH LINKAGES
(Pearson Correlation Coefficients for n = 32)

	Summary		Specific Aspects of Network Linkages				
	Number of Linkages in 1994	Active Network Structure	Increased Transfers to EACH	Improved Communications	Change in EACH Specialist Visits	Change in EACH Contracted Services	Change in Loan(s) of Equipment
1. RPCH Financial Status							
a. Initial	.01	-.12	-.17	-.03	-.33 ***	.03	-.05
b. Final	-.23 †	.09	-.04	-.11	-.13	.04	-.08
c. Change	-.22 †	.19	.14	-.05	.42 **	.02	-.05
2. EACH Financial Status							
a. Initial	-.20 †	-.43 **	-.04	-.03	.01	-.29 †	-.19
b. Final	-.18	-.23 †	-.02	.13	.13	-.14	-.31 ***
3. Network Structure							
a. Prior Links	.53 **	-.11	-.14	.02	-.24	-.10	.51 **
b. Active Network Reported	.09	1.00	.29 **	-.19	.24	.41 **	-.04
c. Miles Between EACH and RPCH	-.00	.15	.26 †	.19	-.01	.19	-.30 †
4. Conversion Probability							
	-.13	.19	.28 *	.30 **	-.02	-.18	-.09

***Significantly different at the < .01 level

**Significantly different at the < .01 - .10 level

*Significantly different at the < .11 - .15 level

†Significantly different at the < .16 - .25 level

and creating stronger linkages. The negative signs on the correlation coefficients in Table II.2 indicate that the poorer the RPCH grantees, the more likely respondents are to report a larger number of linkages or the addition of a specific type of EACH support. However, only the change in EACH specialist visits is statistically significant, although we indicate broad levels of statistical significance in the table because of the small number of observations (32). (We report the probability of rejecting the null hypothesis as high as 25 percent.) RPCHs with an improving financial status are more likely to increase the frequency of EACH specialty visits. It may also be that RPCH grantees that increased the frequency of EACH specialty visits found that their financial status improved; the table cannot tell us which is the cause and which is the effect.

Converting to a RPCH. Grantees converting to RPCH status (or having a high probability of converting) were not more likely to report improvements in all or even most aspects of network development. They have increased transfers to the EACH and improved communications, but in general, they have not reported other activities that would indicate strong linkages. Thus, conversion to RPCH status and strong network linkages appear to be separate and distinct program outcomes. This finding is consistent with our findings on the conversion experience discussed in Chapter III.

Relationship Between Active Network Structure and Concrete Linkages. There is no indication that EACH and RPCH grantees that hold regular network meetings and designate a network coordinator will forge more concrete linkages. A comparison of the first two columns in Table II.2 shows that six of the nine the correlates (even some that are possibly significant) have opposite signs. There is virtually no direct correlation between active network structure and number of linkages.

c. Other Findings

The following are other findings from this analysis of network characteristics associated with stronger linkages:

- *The poorer the EACH's reported financial condition at the start of the program, the more likely it is to participate in an active network structure and provide the RPCH*

with contract services. The financial status of the EACH is not correlated with other specific measures of strong linkages such as increased transfers, specialist visits to the RPCH, or loans/leases of equipment. There is no evidence that financially stronger EACHs lend more assistance to their RPCHs.

- *On balance, the distance between EACHs and RPCHs has no effect on their linkages.* Longer travel time clearly discourages the loan or lease of equipment but does not decrease transfers. The correlation between distance and the summary number of linkages is virtually zero.
- *The number of prior linkages is not associated with new ties to the EACH.* Fewer prior links increase the probability of new loans of equipment, but they are not related to increased transfers, improved communications, or new specialty clinics. Similarly, networks that have regular meetings and a coordinator are more likely to have increased transfers and contracted services but not improved communications and specialty clinics.
- *The most frequently reported aspects of network development are the least predictable.* The items with the greatest general increase in Figure II.2--improved communications and number of RPCHs with specialist visits from the EACHs--were the least predictable in terms of the characteristics measured.

3. Generalizations from the Grantees Experience

Our analysis of the grantee experience suggests two generalizations about the development of networks. First, indicators of improved ties between RPCHs and EACHs appear only partially related to the probability of conversion. Indeed, the first operating RPCH was not even a grantee and did little, if any, network planning before applying for certification. The weak relationship between network development and conversion lends support to the notion that these are separate and distinct program outcomes.

Second, contact between RPCHs and their EACHs has improved, but in many cases, the facilities have yet to develop new concrete linkages. Since the program asked RPCHs to select an EACH, most selected a support hospital with which they already had ties. Yet increases in such linkages as transfers or technical assistance were reported by only a minority of grantees and appear to be unrelated to the intensity of initial ties. Given the level of federal program grant support and state technical assistance, it is important to distinguish between three explanations for these general results: (1) important aspects of network development/relationships are not captured by the monitoring

reports, (2) network relationships take longer to develop than we have been able to observe, or (3) results have been limited, perhaps because the program has not required networks to have certain concrete components, or because in the process of operationalizing the networks, hospitals did not perceive enough benefits to outweigh the costs.

In the following section, we further explore network development through detailed case study data to examine accomplishments, the development process of and difficulties encountered, and to evaluate success to date.

C. NETWORK CASE STUDIES

Our case studies of networks with EACHs and RPDs that had converted or were near conversion suggest that they have made some progress toward better integration, but that there is much room for further development. The case study networks have progressed as follows:

- Hospital-to-hospital coordination has improved in a majority of the networks, and in two networks have brought in another hospital in addition to the EACH.
- Local physician practices are better integrated with the hospitals, since three of the eight RPDs integrated key local physicians as a part of the program, and a fourth RPD was struggling to accomplish this at the time of the site visit.
- Program-related emergency medical service (EMS) efforts in two areas have worked to improve the coordination of response by several different area ambulance services.
- In one case, the county health department had moved into the hospital as a result of the program, improving coordination.

Despite these improvements, local health care in these areas cannot generally be said to be functioning as an integrated system:

- In three cases, although networks were technically formed, hospital-to-hospital coordination did not significantly improve.
- In some areas, not all physicians are participating with the network:

- A clinic near one RPCH is staffed by a competitor of the EACH and does not associate with the local RPCH.
- A major Indian Health Service clinic near one RPCH has declined to participate in the network and is reportedly considering becoming more of a competitor by opening its doors to Medicare and Medicaid clients.
- Only two of a number of area primary care physicians are participating in one network; the network has not sought participation from all physicians in the area, although this is not a competitive issue because all are busy.
- The most comprehensive network, which includes a number of nonhospital as well as hospital members, is facing a boundary issue--where should the geographic line be drawn to stop accepting new members?

Thus, it appears that the EACH-RPCH program, which is focused primarily on linkages among hospitals rather than among different types of providers, has improved coordination of services in some areas but does not lead to formation of a fully coordinated system of care at the local level. The following discussion examines these patterns in greater detail.

a. Level of Network Activity

The case study grantees had mixed success in developing active networks. A majority of the networks (five of eight) are active. Here the EACH and RPCH are closely tied, or the RPCH is part of a more extensive network that is pursuing specific initiatives. The other three were inactive at the time of our visit--with some ongoing clinical ties between physicians but little other support except a financial arrangement in one case.

In the active networks, a variety of services are provided to the RPCH by the EACH or EACH-like hospital, including clinical services, recruiting assistance, and consultation at the department level. Critical management support to the RPCHs is being provided by three EACHs that manage the RPCHs. In addition, the hospitals in several networks made a cooperative effort to improve EMS in their region. Box II.1 shows the structure and activities of the five active case study networks.

BOX II.1

STRUCTURE AND ACTIVITIES OF THE FIVE ACTIVE CASE STUDY NETWORKS

Network #1

Since the RPCH converted, the EACH of this network manages the RPCH under contract, with an administrator who has worked in a rural hospital before, who lives in the hospital's town, and who views himself as a team leader. At the new manager's request, at least the following departments have consulted with the RPCH, helping to update policies and procedures and train staff: legal, finance, safety, infection control, engineering, nursing, lab, respiratory care, accounting. Although the process was not problem-free, staff at the EACH were critical to planning and managing the conversion process with the cooperation of the RPCH administrator.

Network #2

This network--the most ambitious and formal network in our case study set--includes four "anchor hospitals" and at last count nine other health-related entities including EMS councils, county health departments, county social service departments, and representatives of local physician groups. Operating with a half-time network coordinator, the network has so far undertaken regional EMS improvement projects and joint recruiting, and is planning for more extensive joint efforts in areas including credentialing, training, marketing, and grant proposals. The network plans to incorporate, which will qualify it to receive additional funds under a new state initiative. There are additional clinical ties between the EACH and RPCH; RPCH contracts for lab, psychiatry, and radiology were shifted to the EACH as a result of the EACH-RPCH program. The RPCH administrator has been the leader in developing the network, and believes his facility has the most to gain from its success.

Network #3

This network was formed when the potential EACH agreed to help the RPCH avoid imminent closure on the condition it would carefully consider participating in the EACH-RPCH program. The EACH-RPCH network has led to several new specialty clinics held at the RPCH, staffed by EACH physicians, and to a contract for EACH management of the RPCH. The EACH has provided an administrator, who travels to the EACH for related meetings.

Network #4

This network includes an EACH, a RPCH (which was a closed hospital prior to conversion), and a large, urban hospital. The large, urban hospital serves many of the functions expected of an EACH, although the EACH is far closer to the RCPH and provides routine clinical back-up. The urban hospital manages the RPCH, and has led the conversion process with the support of the community board that owns the hospital and of the state's Office of Rural Health. Recruiting has been a network function with cooperation by all three members, and compatible

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BOX II.1 (continued)

*Network #4
(continued)*

computers have been installed in the three facilities. A lab at the RPCH is run by the EACH, but most other ties are between the RPCH and the large, urban hospital. For example, the large urban hospital has provided renovation management expertise for the conversion, financial management, and planning and general management support.

Network #5

This network builds on a 40-year history of referral arrangements between the EACH and RPCH. The EACH now provides biomedical and computer services free-of-charge to the RPCH, whereas formerly the RPCH was charged for these services (approximately \$3,000 per month), and it pays the line charges for interactive video, which is used for continuing medical education and for clinical consultations. Specialty clinics at the RPCH appear likely to be added and staffed by the EACH, and the EACH and RPCH are developing a formal strategic plan for the network for the next five years.

b. Difficulties in Building Effective Networks

Building an effective network with an EACH was generally a difficult task for the case study RPCHs. In addition to local politics, the major problems (in at least two networks) were changes in EACH personnel designated to coordinate network activities, fluctuating EACH interest in the program, community concerns related to historical rivalries or community control, and the fact that an unnatural partner was chosen to be the EACH. RPCH medical staff issues and RPCH-related issues such as downsizing were other factors making the process more difficult.

Changes in EACH Personnel and Fluctuating Interest by the EACH. Changes in EACH personnel designated to coordinate EACH-RPCH activities created problems or delays in half the case study networks. The personal interest of the coordinator in these networks fluctuated with these changes, leading the process to stall for months in one network and for a year in another. In one network, the constant turnover reflects questionable interest on the part of the lead hospital. The turnover may have hurt the RPCH financially and has generally made implementation difficult. Another EACH was reluctant to be helpful after a personnel change, which reportedly led another large hospital to join the network and fill the void. Not all of these EACHs would benefit much from increased Medicare payment under the program. This lack of direct financial benefit for some EACH grantees may help to explain their changes of heart. However, at least one EACH that did not expect to gain directly through Medicare payment sees substantial benefits related to closer relationships with physicians in the RPCH's area. It expects that these relationships will increase referrals from that area in the longer term, thus improving its competitive position.

Community Concerns. Community concerns were a challenge for several networks:

- One community perceives the network as a "takeover" and responded angrily to what it sees as a sell-out by the RPCH. The community had contributed very generously (\$1 million over three years) to a "Save the Hospital" fund, which turned out not to be enough to prevent the hospital from declaring Chapter 7 bankruptcy, although it continued operating. According to the hospital, however, it would have had to declare Chapter 11 bankruptcy and thus shut its doors had it not been for the fund. The RPCH eventually responded to the community's anger

by speaking to local groups about the changes at the hospital, but by its own admission, this response was slow.

- In another network, differences between the EACH and RPCH communities were described as stemming from a historic high school basketball rivalry, different positions taken during the Civil War, and blame assigned to the EACH for closure of the RPCH facility. The EACH and RPCH grantees were formerly jointly owned as a two-hospital system. The EACH administrator reported that several years ago, he had to make the difficult decision to close the RPCH to avoid complete collapse of the system and closure of both hospitals.
- In a third network, the RPCH community was described as skeptical of any such relationship with that particular EACH because of the prosperity of the EACH county relative to the RPCH county.

Unnatural Partnership with the EACH. In two inactive networks, a different EACH would have been a more natural partner for the RPCH; that is, the RPCH had existing clinical ties and referral patterns with a different hospital that could have been the EACH. One of these facilities was not chosen because it was not eligible to be an EACH, since it was within 35 miles of a rural referral center. The other, more natural EACH was already an SCH and thus would not benefit from special payment if it agreed to become an EACH. It and another eligible, but more distant, potential EACH are owned by the same company. The company decided the more distant, but unnatural, partner would be the EACH so that it could benefit from the special payment, although the existing referral relationship would continue with the more natural partner.

Medical Staff Issues and RPCH Issues Such as Downsizing. Medical staff issues and RPCH issues such as downsizing are closely related to RPCH conversion and affect the network as well. For example, one EACH we visited was interested in a network relationship and in supporting the RPCH--but only in the context of RPCH conversion when it would begin receiving special Medicare payment as an EACH. Since the RPCH was slow to decide to downsize and convert, the network remained inactive.⁶ Another EACH, which has been leading the network, considers its ability to

⁶A final decision had not been made at the time of our visit, although indications were that the RPCH would convert.

persuade the local physicians to work for the RPCH to be critical to the RPCH's survival. These difficult negotiations have been and still are a major unresolved network issue. The area physicians' reluctance to be employed by the RPCH appears to stem from mistrust generated by historically bitter disputes with the hospital board and/or former administrator about the amount of emergency room coverage they could reasonably be expected to provide.

c. Importance of Network Development to RPCH Operations

Networks and EACHs appear to have the potential to provide critical support to RPCH operations, although this type of support was not consistent throughout the networks we studied, and it is still too soon to determine the long-term impact of the networks on the RPCH and RPCH community. In four of the five active networks we visited, the network and/or EACH appear critical to the RPCH's survival and have helped to maintain or improve access to care. In two additional networks, the role of the EACH appears helpful or potentially promising, though not critical; in two other networks, which were inactive, the EACH provides primarily financial support to the RPCH without the types of assistance that would create a more viable facility for the long term.

In that EACHs or networks are important in the following ways, they have a high potential to help small, rural hospitals under the right circumstances:

- *Improving the management of the RPCH* by placing a qualified administrator who is committed to seeing the RPCH survive (three of the eight networks) and by providing departmental management assistance, e.g., billing staff from the EACH visiting and reviewing billing procedures and recommending changes, or engineering department staff assisting with building changes needed to meet life-safety codes (extensive at three networks)
- *Improving access to ambulatory care* for area residents by arranging for EACH physicians to hold periodic specialty clinics at the RPCH (one network, another working toward it, and a third considering it as a longer-term goal)
- *Maintaining access to primary care* by assisting with recruiting (three networks) and/or providing an incentive for some area physicians to stay in the area as RPCH employees when there are signs they might leave (one network)

- *Improving the quality of care* through revised policies and procedures, staff training, and ongoing linkages between EACH and RPCH quality assurance functions (four networks)
- *Providing a structured forum* where the RPCH can work toward its objectives with the other hospitals and health care entities in the region, thus eliciting more support than it would by working with individual entities (evolving in one network)

Boxes II.2 and II.3 explain whether and how the EACH or network is important to the RPCH. Where the EACH or network is not important, the network had generally been formed for financial advantage and/or the RPCH was not in the type of emergent financial crisis or closure that had prompted the more fundamental support in the networks where the EACH or network has been critical to the RPCH.

D. SUMMARY OF NETWORK DEVELOPMENT

The information reported by all grantees in the monitoring reports and the patterns in the case studies suggest that the results of the EACH-RPCH program are decidedly mixed. There are active networks developing cooperation between multiple providers and successfully strengthening ties between hospitals. In these cases, EACHs provide critical support that makes RPCH grantees more viable. Yet, these networks appear to be more the exception than the rule.

The case studies help to explain why we did not find more comprehensive or consistent success: changes in EACH and RPCH key personnel combined with fluctuating interest by the EACH, community concerns, and unlikely EACH candidates have made network-building difficult for the RPCHs we visited. The case studies also point to the diverse ways in which EACHs have been important to RPCHs. This diversity in support makes positive program effects less clear when viewed on a program-wide basis.⁷

⁷For example, one EACH has been critical to one RPCH in recruiting physicians and a mid-level practitioner but less critical in other ways. Another has made a large and important effort to provide specialists to the RPCH, and another provides ongoing management expertise.

BOX II.2

MAIN WAYS THE EACH OR NETWORK WAS IMPORTANT TO RPCHS IN FOUR NETWORKS

- Network #1* This RPCH clearly would have closed had the EACH not agreed to help it remain open on the condition it consider the program. Since then, the EACH has improved management of the RPCH, providing a new administrator to replace a series of managers from a management firm who reportedly were inexperienced and possibly inattentive. The network has improved access to RPCH residents, since EACH specialists now hold weekly specialty clinics at the RPCH. It has likely improved quality of care in that the quality assurance (QA) director at the RPCH is a participating member of the EACH's QA committee.
- Network #2* The EACH appears critical to the RPCH's survival in having managed the transition process of the RPCH (with the RPCH administrator's full support), and is providing ongoing management support through providing a new administrator, and through assisting the RPCH at the department level; EACH departments including legal, finance, safety, and infection control have assisted the RPCH with training and revising policies and procedures.
- Network #3* RPCH designation, for this RPCH (not yet certified), is a way to retain and enhance primary care services in an area that otherwise would likely have lost a physician. In addition to retaining a physician who likely would have left, the EACH and third hospital have recruited an additional physician and a physician assistant that enhance access to primary care.
- Network #4* This RPCH has not yet opened as a RPCH (it operates as an alcohol rehabilitation facility and primary care clinic), but it will do so only with the critical support of the EACH in areas such as physician coverage and department-department consultation.

BOX IL3

REASONS WHY THE NETWORK OR EACH IS LESS CRITICAL OR UNIMPORTANT TO THE RPCH IN FOUR NETWORKS

- Network #1* In this network, the hospital essentially operates as a RPCH now although it has not been designated yet. Although the EACH offers the RPCH's only hope for retaining the ER, it is not yet clear whether the RPCH will successfully negotiate this type of arrangement. The RPCH will likely continue to operate as a long-term care, primary care, and limited inpatient facility regardless of the outcome of the network negotiations.
- Network #2* The EACH in this network is providing substantial support to the RPCH--technological and biomedical support, valued at approximately \$84,000 annually, and quality assurance support--but the assistance was not critical to the very existence of the RPCH. The network is continuing to develop, and it appears that support in the future may increase beyond this financial support.
- Network #3* In this case, there is a financial arrangement in place and a provision for some in-kind support from the EACH to the RPCH, but the RPCH continues its close referral relationship with another hospital that was not selected as the EACH largely because of the financial incentives of the program. The EACH helped establish a cardiac rehabilitation capability at the RPCH, but the RPCH administrator believes that good consultants to the RPCH are more important to its survival than a formal network arrangement.
- Network #4* The EACH-RPCH relationship will be advantageous to the RPCH, but the support is not of a critical nature to the RPCH's survival. The EACH has agreed to lease and remodel space, and provide long-term care in the space that will be vacated at the RPCH due to downsizing. The EACH has also assisted with the RPCH's risk management and peer review, and a pathologist at the EACH reviews all transfers and deaths associated with the RPCH.

The case studies also suggest that some RPCH grantees may have chosen to pursue network-building only to a limited extent. In some networks--half of those we visited--the network or EACH did not appear critical to the RPCH's survival, at least in the short term. Two of these four RPCH grantees reaped some benefits from their EACH but were comfortable with the current, limited relationship.⁸ For example, the first RPCH to be designated is a hospital that did not receive a grant. It converted under a financial relationship with the EACH but did not have or develop more substantive ties. Two other grantees are looking to realize additional benefits from their relationships with their EACHs and are optimistic about stronger ties in the future, but the timeframe for forging additional connections is unclear, and the nature of the future support cannot be said to be critical to the survival of the facility. The data do not suggest that RPCH grantees with more ties or more active networks were better able to improve financial status over the program period, so we cannot second-guess the RPCHs that have decided to limit network activity.

The program-wide data and case studies may jointly suggest that expectations for network-building should be toned down. Our initial expectation--that EACH-RPCH networks could provide critical and wide-ranging support for all or most of the small struggling hospitals seems misplaced, given our findings over the program period. Instead, it appears that some RPCHs will want and can benefit from this type of arrangement. Half the case study grantees found that major support from the EACH or the network is critical to its conversion to a RPCH, while others expect to find other options more practical or available, at least in the short term.

⁸One of these was more actively developing a relationship with a hospital that was not its EACH.

III. EXPERIENCE OF HOSPITALS CONVERTING TO RPCHs

Although several state officials believe that network development is the key innovative aspect of the EACH-RPCH program, its principal objective is to shift small, struggling hospitals to an alternative, viable model. While the number of hospitals moving toward conversion rapidly increased toward the end of 1994, less than half of the RPCH grantees have reported that conversion is very likely. In this chapter, we review the RPCH concept and its goal, and we examine the experience of grantees shifting to limited-service status. The purpose of this investigation is to discover what is different about converting facilities, why they decided to "leap" onto new ground, and how smooth the conversion process was. We review data from monitoring reports to determine what distinguishes "pioneers" from the other grantees who do not see the RPCH model as particularly advantageous, and we use data from case studies of converting facilities, focusing on their decision to convert and on the administrative process. The chapter concludes with a discussion of the grant programs.

A. THE GOAL AND CONCEPT OF THE RPCH

The RPCH model limited-service hospital is primarily intended to assist rural communities in maintaining access to primary care and limited hospital services when they can no longer support a full-service hospital. The model is also expected to reduce excess inpatient bed capacity, potentially reducing costs. To this end, at least the following must occur:

- Some small, rural hospitals must believe that the RPCH model offers benefits that outweigh its costs and be willing to try the model. The degree to which others will follow these pioneers should depend, in part, on their experience.
- Potential RPCHs must locate qualified EACHs, and the EACHs must believe the EACH-RPCH linkage will benefit them in some way.
- Potential RPCHs must operationalize the RPCH model. They may focus on meeting program requirements or think beyond them to strategic changes that will make their facility more viable.

- Facilities must successfully complete the conversion process to become designated (with their EACHs) by their state and HCFA, and certified by Medicare.

The EACH-RPCH program has been a grant and an ongoing operating program. While RPCH grantees have been expected to make a good-faith effort to consider the RPCH model, the connection between obtaining a grant and becoming a RPCH is a loose one. There have been few restrictions on how the grant funds are spent by EACH and RPCH grantees except that the state program staff followed by HCFA approve hospital budgets. This has several implications. First, we can assess what types of hospitals are attracted by the program (at least initially) by comparing the characteristics of grantees that have converted or are close to becoming a RPCH with those that are not. Second, using the case studies as well as monitoring report data on conversions and grant spending, we can assess the role of grant funding in encouraging and covering the costs of conversion. Third, it is noteworthy that the grant program may have had beneficial effects beyond influencing grantees to convert to RPCHs. Therefore, when grantees report about the effects "of the program," they are referring primarily to the effects of the relatively unrestrictive grant program, rather than the more restrictive operating program, because, for the most part, grantees did not even begin to become RPCHs until near the end of the period covered here.

B. FEATURES OF PIONEER RPCHs

One measure of the success of the EACH-RPCH program is how many grantees actually converted. As of February 1995, 7 of the original 44 grantees have been certified as RPCHs. Three non-grantee hospitals have also converted. Another 6 facilities (one non-grantee) have applied to be surveyed. For our tabulations, converting facilities include those that are certified as well as those that recently indicated at least a high probability of pursuing certification. To determine what distinguishes these "pioneer" facilities from those that have decided not to convert, we compared the two groups of facilities in terms of the following features:

- *Facility Structure.* Do converting facilities "look" the same as nonconverting facilities? How many beds or physicians do they have? Do their discharge patterns differ?
- *Utilization.* Do converting facilities see the same number of patients as nonconverting facilities?
- *Recruitment and Key Staff Turnover.* Have converting facilities had greater difficulty than others with recruiting and retaining physicians? Do other key staff turn over more frequently?
- *Network Development.* Do network characteristics influence a grantee's decision to convert?
- *Financial Status.* Does a facility's financial status or change in financial status influence the likelihood of conversion?
- *Other Changes.* What other changes may distinguish converting from nonconverting facilities?

1. Facility Structure

In analyzing facility structure, we compared the size of pioneers to nonconverting hospitals. We also looked at whether they were already in the process of reducing the number of beds. Before entering the program, converting grantees had fewer acute care and long-term care (LTC) beds and significantly lower acute patient days compared with nonconverting hospitals.¹ By the end of the program, as shown in Table III.1, converting hospitals decreased the number of acute care beds but increased the number of LTC beds. Nonconverting hospitals sustained roughly the same number of both types of inpatient capacity. With an average of 17 acute care beds in 1994, most facilities in the process of conversion still have to downsize. However, the fact that acute days for converting facilities are one-third of that for nonconverting hospitals indicates that this should present few problems. Average daily census in converting grantees was running only 1.3 patients per day.

¹For this table, LTC beds include skilled nursing, intermediate care, and other long-term care.

TABLE III.1

AVERAGE NUMBER OF BEDS AND ACUTE PATIENT DAYS
FOR RPCH GRANTEES BY CONVERSION STATUS

	Acute Care Beds		LTC Beds		Swing Beds		Acute Patient Days	
	Initial ^a	Final	Initial	Final	Initial	Final	Initial	Final
RPCH Conversions (n = 14)	20 (14) ^b	17 (15)	20 (24)	25 (32)	7 (12)	8 (12)	525 * (469)	447 * (469)
Nonconversions (n = 18)	23 (16)	23 (15)	25 (33)	25 (34)	11 (10)	10 (9)	1,652 * (2,256)	1,515 * (2,012)
All Grantees (n = 32)	22 (15)	20 (15)	23 (29)	25 (32)	9 (11)	9 (10)	1,159 (1,790)	1,069 (1,633)

SOURCE: Tabulations of EACH-RPCH monitoring report data.

^aFor information on span of time periods, see Appendix B.

^bNumbers in parentheses are standard deviations.

*Statistically significant at the 0.1 level, t-test difference between means.

2. Utilization

Converting and nonconverting hospitals differ sharply in terms of changes in utilization over the grant period (Figure III.1).² Compared to nonconverting grantees, converting facilities have seen falling or more slowly growing inpatient utilization rates. The annualized rate of change in acute patient days at converting facilities has been declining, while the rate at nonconverting facilities has been increasing. Average length of stay has been declining at all grantees, but more so at converting hospitals. This finding is supported by grantees' self-reported changes: less than one-quarter of the converting facilities reported an increase in the number of acute inpatients at some point during the program period, whereas more than half of the nonconverting facilities reported such increases.³

Figure III.1 also shows that growth in outpatient department volume is lagging in converting facilities relative to nonconverting facilities; however, this finding is sensitive to the method of analysis.⁴ For example, while a lower percentage of converting than nonconverting facilities reported some positive change in outpatient visits over the period (57 versus 83 percent), they apparently had some large successes, since the overall average number of visits improved more for converting than nonconverting facilities (40 percent versus 31 percent improvement).

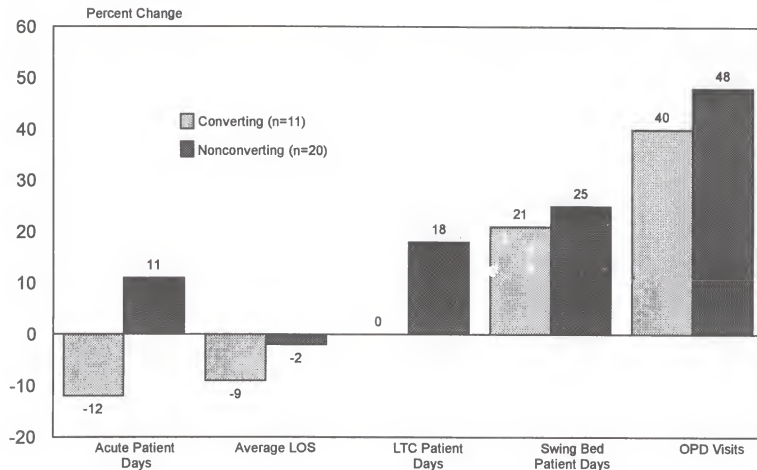
Judging from our case studies, it is likely that the drop in inpatient utilization influenced conversion in most cases, although for some hospitals there may have been preconversion planning in which inpatient utilization was reduced as part of the transition to a RPCH. Table III.2 shows that the fewer inpatient days characteristic of converting grantees are not a result of average length of stay but of sharply lower admissions. On average, stays will need to be cut by one-fourth following

²Appendix B contains the reported numbers of acute and LTC patient days at the beginning program activities and the rate of change for all RPCH grantees, listed by conversion status.

³This check was conducted using a series of items that directly asked RPCH grantees what types of changes they observed during each reporting period, noting an increase or improvement, decrease or adverse change, or no change. The previous analysis was our analysis of change based on the utilization figures they reported.

⁴All analyses show overall growth in outpatient care among both sets of grantees, some of which is likely for lab and x-ray procedures rather than visits.

FIGURE III.1
PATIENT DAYS AND OUTPATIENT VISITS RATES OF CHANGE



Source: Tabulations of EACH-RPCH monitoring report data.

TABLE III.2

ACUTE DISCHARGE PATTERNS OF RPCH GRANTEES
October 1993 - March 1994

	Average Annual Admissions	Length of Stay		Discharge Status (Percentage)				Total
		ALOS	Percent > 3 Days	Home	Swing Beds	LTC	Transferred	
RPCH Conversions (n = 12)	143 ** (86)	3.9 (1.3)	40 (23)	58 ** (15)	19 *** (19)	6 (7)	16 (5)	100.0
Nonconversions (n = 14)	225 ** (234)	3.3 (.8)	37 (14)	70 * (24)	7 * (8)	8 (8)	7 (5)	100.0
All Grantees (n = 26)	189 (186)	3.5 (1.1)	38 (18)	65 (21)	12 (15)	7 (7)	11 (11)	100.0

SOURCE: Tabulations of EACH-RPCH monitoring report data

- NOTES: 1. Standard deviations in parentheses
2. The tabulations exclude three high volume hospitals

*Significantly different at the .11 - .15 level.

**Significantly different at the .01 - .10 level.

***Significantly different at the .01 level.

conversion. Compared with nonconverting facilities, converting facilities discharged a lower percentage of patients home. Much of this difference is made up by the significantly higher proportion of patients discharged to swing beds. In fact, many of these converting facilities reported increasing the use of swing beds. They also transferred a higher percentage of their admissions, possibly suggesting lower service capacity than available at nonconverting facilities.

3. Recruitment and Key Staff Turnover

The lower inpatient utilization in converting facilities is not surprising given that they have significantly fewer attending physicians. By March 1994, RPCH grantees had an average of less than three physicians practicing primary care. Most facilities had the same number of physicians practicing primary care at the end of the program as they had at the beginning.⁵ As shown in Table III.3, which summarizes the key characteristics of converting and nonconverting hospitals, the average number of primary care physicians at converting facilities was significantly lower at the beginning and the end of the grant period. In fact, the number of primary care physicians at nonconverting facilities increased on average, while it decreased slightly at converting facilities. This observation is confirmed by a different type of analysis: only 36 percent of converting grantees, compared with 61 percent of nonconverting facilities, reported an improvement in their ability to recruit or retain physicians during the program period. This difficulty in attracting physician staff also may have influenced the decision to convert.⁶ It is noteworthy, however, that just over half of both converting and nonconverting facilities reported an improvement in their ability to recruit or retain mid-level practitioners during the program period.

⁵Appendix B contains tabulations on utilization as well as the reported numbers of primary care physicians at the beginning and end of program activities for all RPCH grantees, listed by conversion status.

⁶The greater difficulty in attracting physician staff is very unlikely to have been a result rather than a cause of the decision to convert. Such a finding would run counter to our case study findings, where several converting hospitals increased physician staff and forged closer ties to area physicians.

TABLE III.3
SUMMARY OF CHARACTERISTICS OF CONVERTING
AND NON-CONVERTING RPCH GRANTEES

Characteristics	Converting ^a	Non-Converting	All Grantees
Facility Size			
Acute Care Beds (Staffed)			
Initial	20	23	22
Final	17	23	20
LTC Beds			
Initial	20	25	23
Final	25	25	25
Utilization			
Acute Patient Days per Year			
Initial ^b	525	1,652	1,159
Final ^b	447	1,515	1,069
OPD "Visits" ^{c,d}			
Initial	8,916	13,317	12,830
Final	12,456	17,432	18,539
Staffing			
Number of Primary Care Physicians ^e			
Initial	1.8	3.3	2.6
Final	1.5	3.8	2.8
Average Number of Key Staff Changes ^f	2.1	2.9	2.6
Network Activity			
Percent Somewhat Active	57 %	33 %	44 %
Percent Inactive	7 %	29 %	20 %
Percent Acute Patient Transfers to EACH ^g	58 %	47 %	52 %

TABLE III.3 (continued)

Characteristics	Converting ^a	Non-Converting	All Grantees
Financial Status			
RPCH Reporting "Good"			
Initial	29 %	28 %	28 %
Final	50 %	28 %	38 %
RPCH Financial Status Score ^h			
Initial	1.9	1.8	1.9
Final	2.4	2.1	2.3
EACH Financial Status Score ^h			
Initial	2.8	3.4	3.1
Final	2.9	3.4	3.2

SOURCE: Tabulations of EACH-RPCH monitoring reports with average times between initial and final report of 17 and 13 months for converting and nonconverting grantees. See Appendix B.

NOTES: ^aRPCH converters include facilities that have converted, are in the process of requesting certification, or reported a high probability of conversion on the most recent monitoring report.

^bDifference between converters and nonconverters statistically significant at the .10 level. No other difference is significant.

^c"Visits" include for some hospitals lab and x-ray procedures ordered from physician offices. The measure is accurate only for relative scale of two hospital groups.

^dOne unstable observation excluded from nonconverting hospitals.

^eOne RPCH grantee excluded from tabulations since all EACH physicians practice at the RPCH.

^fKey staff defined as administration, physician, chief financial officer.

^gTabulations exclude three relatively high-volume nonconverting hospitals.

^hFinancial status rating calculated as the average for excellent = 4, good = 3, fair = 2, and poor = 1.

Although converting hospitals as a group appear to have experienced a slight loss of physicians, there was generally less instability among key staff positions. We tracked turnover of the following key staff positions for all EACH and RPCH grantees: administrator, chief financial officer, medical director, director of nursing, and EACH-RPCH coordinator. On average, RPCH grantees saw a total of 2.6 changes over the course of the program. Converting facilities had fewer turnovers than nonconverting facilities (2.1 versus 2.9), although the difference was not statistically significant. According to the distributions (not shown), there was an equal proportion of no changes in both groups of hospitals, but a higher percentage of nonconverting facilities saw more than 3 changes. It may have been that these facilities were not able to follow through with any plan for change and thus, failure to convert was more a "non-choice" than a choice. For small facilities, this level of turnover represents a considerable source of instability. As a group, grantees experienced more than one major change a year.

4. Network Development

As reported in Chapter II, converting grantees were, on average, not more likely than nonconverting grantees to report improvements in all or even most aspects of network development over the program period. However, Table III.3 shows that loosening the criteria that define an "active network" creates a slightly different picture. All but 7 percent of the converting grantees reported at least "somewhat" active networks--they have periodic network meetings but no coordinator with set-aside time for the network. In contrast, nearly one-third of the nonconverting grantees reported no network activity at all. The most reasonable interpretation of these findings may be that periodic meetings with the EACH are necessary to convert to a RPCH because decisions about the facilities' relationship must be made before the RPCH applies for designation, although strong linkages are not a necessity. One could also argue, however, that EACHs may have taken the

lead in periodically meeting with the RPCH to encourage it to seek designation, and that these meetings eventually paid off.⁷

In terms of patient transfers, Table III.3 shows that converting RPCH grantees tend to transfer a slightly higher proportion of patients to the EACH than do nonconverters (58 versus 47 percent), although this difference was not statistically significant.

5. Financial Status

Whether converting and nonconverting hospitals differ in their financial status depends on the analysis used. Table III.3 indicates that converting hospitals were much more likely to report greater improvement in financial status. The final section in Table III.3 gives the proportion of grantees rating their financial status as "good" at the beginning and end of the grant period. Half of the converting facilities reported a good financial status at the closing, up from only 29 percent. The percentage of nonconverting facilities reporting a good financial status remained constant at 28 percent. These findings should, however, be interpreted cautiously for two reasons. First, the data reflect perceptions, not concrete measures, of status. RPCHs may report improved status when they *perceive* they are better prepared for the future. For example, an administrator of a converted RPCH that we visited believed his facility was "in the black" for the first time over the past few months, a perception that was not shared by his accountant, with whom we spoke later. Only a few of these facilities had even begun to receive payment as a RPCH, so RPCH payment is not a cause of improved financial status, if the improvements are real. Second, analysis of a different question on the monitoring report that directly asks about improvements in financial status contradicts this analysis. Forty-three percent of converting facilities, compared with 61 percent of nonconverting facilities, reported improvements in financial status at some point during the period.

⁷The EACH did not generally play this type of direct, persuasive role in our case studies, however.

The last section in Table III.3 also shows summary indicators of financial status--the mean score of an index where the financial status rating is calculated similar to a grade point average (excellent=4, good=3, fair=2, and poor=1). Converting RPCH grantees gave themselves an initial grade of 2 (equivalent to a C), whereas nonconverters initially gave themselves a C-. By the end of the period, converting facilities had moved to a high C+, and nonconverting facilities had moved to a C.

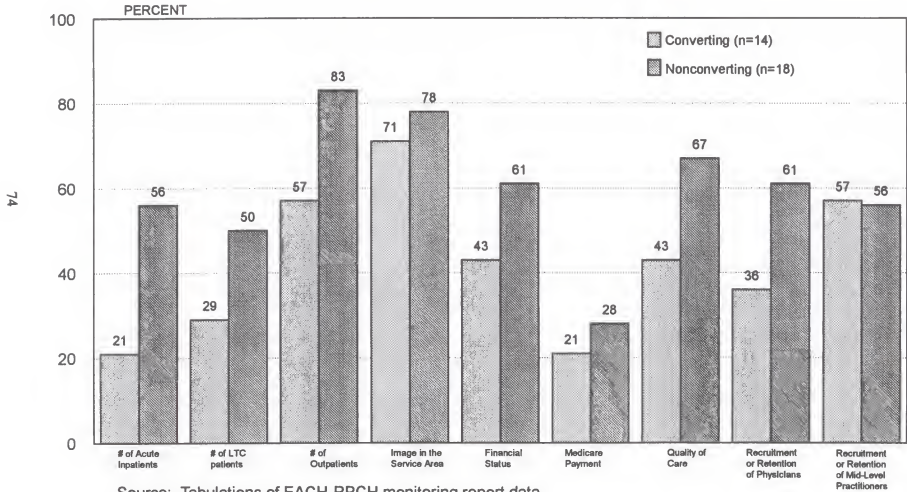
On average, the EACH grantees reported a financial status a step above that of the RPCH grantees. Two EACH grantees reported lower initial scores than that of the corresponding RPCH grantee, and only one reported a lower end rating. EACH grantees of converting facilities (converting EACHs) reported lower financial status than EACH grantees of nonconverting facilities, and this difference is significant. This could suggest that the converting EACH facilities had more of a vested interest than others in getting RPCH grantees to convert. Looking at the EACH scores, we see that on average, these facilities are more fiscally stable--in the B to B+ range--nearly a step above the RPCH facilities. There was no significant change in reported status for the EACH grantees of converting and nonconverting RPCH grantees.

6. Other Changes

Figure III.2 lists nine items that we examined for differences between the two groups and shows the percentage of converting and nonconverting grantees that reported a positive change at least once over the course of their project activities. Utilization, recruitment, and financial status have already been discussed. The other findings from this analysis are:

- Converting facilities were less likely to report improvements in quality of care over the period; while 43 percent did report some improvements over the period, two-thirds of nonconverting facilities reported improved quality.
- There was not a significant difference in the percentage of converters and non-converters who reported improvements in Medicare payment over the period (21 and 28 percent, respectively).

FIGURE III.2
CHANGES IN RPCH OPERATIONS:
PERCENT REPORTING ANY POSITIVE CHANGE



- There was not a significant difference in the percentage reporting an improvement in their image in the service area, with about three-fourths of both groups believing that their image had improved.

To sum up the overall apparent differences between converting and nonconverting hospitals, those shifting to RPCH status:

- Have fewer physicians and saw a slight decline in their availability over the grant period
- Decreased the number of their acute care beds but increased the number of LTC beds
- Admit fewer patients but hold them for longer lengths of stay
- Shift a higher percentage of patients to swing beds and transfer a higher proportion to other facilities
- Are more likely to at least hold periodic network meetings with the EACH, though they are not more likely to have strong network linkages
- Move only a slightly higher proportion of transfer patients to EACHs
- Have EACHs that reported slightly worse financial condition than those of nonconverting grantees

While the validity of these generalizations is limited by the small number of observations, they present a picture of differentially struggling hospitals that are not extensively supported by network development and for which the threat of closure is imminent. These fragile institutions cannot be expected to have many resources for strategic planning or to be able to withstand a prolonged and difficult transition to RPCH status.

C. CASE STUDIES OF CONVERTING HOSPITALS

There are two aspects of converting to a RPCH: (1) making strategic changes to better position the facility for the future and (2) participating in the formal designation and certification process. These aspects of conversion are independent in that the program does not dictate which comes first. For example, two RPCHs we visited were only mid-way through implementing their planned strategic

changes, although they had converted to a RPDH. Most of the case study networks that pursued formal designation and certification also made major strategic changes, although one did not. Table III.4 shows how each case study RPDH except one undertook both conversion activities and assesses the program's role.

1. Success in Planning and Implementing Strategic Changes

Seven of the eight case study RPDHs planned and implemented major strategic changes; the EACH-RPDH program was one, but not the only, influence in this process. Other factors, such as the leaders' vision of what services should be provided and what type of facility would be feasible and most financially viable, contributed as well. In each successful case, consultation from outside the hospital—whether from the EACH, state staff, or a hired consultant—was key to deciding on and planning for the changes.

A major expectation of the RPDH program is that it will encourage substantial changes to the structure and scale of operations in small rural hospitals that are not viable as currently structured. The major changes in the case study RPDHs fall into a number of categories:

- Downsizing, i.e., closing inpatient beds and reducing inpatient services
- Increasing services other than inpatient services
- Reducing and changing staffing
- Changes to organizational structure and use of facility space
- Changes in management structure

TABLE III.4

OVERVIEW OF STRATEGIC AND TECHNICAL CONVERSION

Location of Case Study RPCH or Grantee	Overview of Strategic Plans for Conversion	Role of EACH-RPCH Program in Plans	Technical Conversion Status
North Carolina	<ul style="list-style-type: none"> Converted from a traditional, underutilized hospital in an old building, to a long-term and senior care-focused facility in a new building 	<ul style="list-style-type: none"> Program was a contributing factor in planning and making changes The State's Office of Rural Health Policy and other grants and funding sources were more critical than the program 	<ul style="list-style-type: none"> Will likely seek RPCH designation as part of a deal with EACH to obtain EACH's help in covering and thus retaining the ER
	<ul style="list-style-type: none"> Reopen closed hospital to function primarily as a rural health clinic Hope is to expand clinic-type services and hours over time Brought community physicians into salaried setting to help retain them 	<ul style="list-style-type: none"> Important initial reason for seeking network relationship and seeking to reopen health services at closed hospital Grant funding may have been critical to success in reopening services Decision to seek RPCH designation will be a financial one 	<ul style="list-style-type: none"> Open as a rural health clinic; will likely seek designation as RPCH due to perceived advantages of RPCH outpatient payment and to help the EACH
West Virginia	<ul style="list-style-type: none"> Downsized inpatient beds and services Reduced staff Opened outpatient clinic Hired two physicians Is attempting to hire community physicians 	<ul style="list-style-type: none"> Program was the impetus behind the changes and network 	<ul style="list-style-type: none"> Designated RPCH; certification sought because viewed as best hope for hospital survival
	<ul style="list-style-type: none"> Downsized beds and inpatient services Reduced staff Added long-term care Increased utilization review Management ties Provides specialty outpatient clinics 	<ul style="list-style-type: none"> Existence of EACH-RPCH program provided model for change EACH agreed to help RPCH on condition it consider the program No grant funding 	<ul style="list-style-type: none"> Designated RPCH; certification sought due to perceived financial advantages of cost-based payment to greatly reduce losses

TABLE III.4 (continued)

Location of Case Study RPCH or Grantee	Overview of Strategic Plans for Conversion	Role of EACH-RPCH Program in Plans	Technical Conversion Status
Kansas	<ul style="list-style-type: none"> • Purchased practices of area physicians • Hired nurse practitioner • Eliminated certain inpatient services • Plans to add outpatient specialty clinics 	<ul style="list-style-type: none"> • Program was the impetus behind the changes and network (CHK) 	<ul style="list-style-type: none"> • Designated RPCH; certification sought to reduce level of financial losses
	<ul style="list-style-type: none"> • None 	N/A	<ul style="list-style-type: none"> • Surveyed to be a RPCH; planning to convert October 1, 1994; main benefit to RPCH will be annual lease payment from EACH
New York	<ul style="list-style-type: none"> • Regain control of the on-site rural health clinics (from EACH) • Extend clinic hours hopefully to 24 hours to provide urgent care • Reopen 6 of the closed hospital's original 49 beds to short-stay patients • Use cross-trained nursing staff who would also cover the co-located alcohol/rehabilitation facility 	<ul style="list-style-type: none"> • Program was initial impetus behind RPCH's attempts to (1) reopen some services at closed hospital and (2) create a regional network 	<ul style="list-style-type: none"> • Would like to convert to a RPCH as soon as possible; state policies and procedures will not yet allow conversion
South Dakota	<ul style="list-style-type: none"> • Reduced and in some cases replaced staff • Cross-trained staff • Eliminated some inpatient services • Hired a physician assistance • Added specialty outpatient clinics 	<ul style="list-style-type: none"> • Program not central to changes; at a time of stress, RPCH approached by EACH and offered financial support 	<ul style="list-style-type: none"> • Designated RPCH; certification sought for benefit of EACH and to receive cash and in-kind assistance from the EACH

a. Downsizing: Closing Inpatient Beds and Reducing Inpatient Services

The eight case study hospitals have or plan to downsize from a total of 190 inpatient beds to 74.⁸ Of this set of RPCHs, two closed as acute care hospitals and currently have no inpatient capacity, so their capacity will actually increase slightly. Several of these hospitals closed certain inpatient services as they worked toward conversion; however, others had already closed these services in the years before participating in the program. More specifically, three closed their inpatient surgical service as part of becoming a RPCH, one stopped providing high-risk obstetrical care, and another stopped providing all obstetrical care. None of the case study RPCHs now offer inpatient surgery, and only one provides routine obstetrical care.

b. Increasing Services Other Than Inpatient Services

To increase viability, all but one case study RPCH is expanding or seeking to expand services other than inpatient services. Two RPCHs have opened sizeable long-term care units (60 or more beds) as part of their strategic conversion; two offer and a third is seeking to offer new specialty outpatient clinics such as cardiology, orthopedic surgery, and obstetrics/gynecology; and three are expanding or seeking to expand general primary care through, for example, recruiting additional providers or extending clinic hours.

c. Reducing and Changing Staffing

Three of the case study RPCHs have made substantial net reductions in staffing as part of their strategic conversion as follows:

- One laid off 60 of 160 employees. One of the major areas for change is to combine the rural health clinic and emergency room staff, and thus discontinuing 24-hour physician coverage of the emergency room.

⁸The five that have actually converted or been surveyed to date have downsized from a total of 170 beds to 54.

- One laid off 20 of 64 employees. The facility retained all of its licensed nurses and scaled back plans to lay off all nurses' aids after the community protested. The RPCH also discontinued a contract for 24-hour coverage of the emergency room.
- One made staffing reductions in all departments and contracted out for laundry and dietary services.

Although staff reductions the dominant response in these RPCHs, in some cases personnel were replaced to obtain better performers or skills more appropriate to the new facility. These RPCHs also cross-train staff as part of their effort to increase efficiency. For example, clinic nurses are trained to handle the emergency room as well as the clinic; nurses are trained to handle functions formerly performed by respiratory technicians; technicians for laboratory and X-ray are also cross-trained.

Of the remaining five case study RPCHs:

- Two are closed hospitals and thus are increasing their staff with conversion
- One converted to a facility focused on long-term and senior care, expanding from 35 to about 95 employees
- Two of the case study RPCHs chose not to make major changes in staffing

d. Organizational Structure and Use of Facility Space

Five of the eight case study RPCHs have made or are planning to make major organizational changes to bring a clinic or area physician practices under RPCH control, indicating their view that stronger ties to the community physicians are critical to future viability. Two have already accomplished this. In two of the others, which are the closed hospitals, the rural health clinics that are currently operating on-site will, upon conversion, officially become the core of the RPCH operation. The fifth case study RPCH is struggling to persuade two community physicians (not now located at the hospital) to become its employees and believes its future viability may depend on whether they do so.

These RPDHs are split between those in which local physicians physically moved on-site and those that made an organizational change that involved no physical move. However, one RPDH found that even when physicians do not move, there are real advantages. For instance, the two organizations' business offices were combined, allowing for staff reductions. Further, some efficiencies may be possible even without organizationally unifying a RPDH and a collocated rural health clinic, as in the case of one RPDH that began to jointly staff the rural health clinic and emergency room.

Other case study RPDHs also made significant changes in their organization or have made arrangements to better use their existing physical space. The largest changes involve increasing long-term care activities:

- One opened a 60-bed skilled nursing unit for long-term care, and another moved to a new building, devoting most of its space to long-term care and senior citizen rooms (the long-term care portion is now completely full).
- One is leasing space to the EACH, which will operate a 13-bed long-term care unit.
- One has leased space to the local health department.
- Three converted first-floor hospital space to exam rooms better suited to primary care, at the same time creating a more logical patient flow than was feasible under the old space plans.
- One has moved all of its acute care-related services to the first floor of the building to increase staff efficiency over the old set-up, which had services spread throughout the (large) building.

e. Management Changes

As part of their conversion strategy, three of the eight case study RPDHs changed management structure, so two are now managed by an employee of the EACH, and one is managed by another large hospital in the network. It is too soon to assess the effects of the changes, although it appears that in two of the three cases, the changes are having a positive impact, and in one, management has continued to be a significant problem. The following are positive effects:

- The prior administrator operated the hospital in the same manner for decades and had not ever managed any outpatient care services at the hospital; the new administrator provided by the EACH is more suited to the converted facility, having had experience in managing a large emergency department and in working in outpatient departments (he is a respiratory therapist by training).
- The current administrator reported that when she arrived to replace her predecessor, she observed that the rural health clinic had not been billing for care for Medicare patients for a year because of an unresolved question about billing. The current administrator has a financial management background.

Management turnover has plagued most of the RPCH grantees, not just the case study RPCHs; only time will tell whether the RPCHs' new structures will make it easier to retain competent managers as well as clinical staff.

2. Experience with the Designation and Certification Process

The case study RPCHs we visited generally had few problems becoming a designated, certified RPCH except in the area of understanding and obtaining payment. The major steps to becoming a designated, certified RPCH are the application and designation process, a certification survey, revising policies and procedures to comply with the regulations, and selecting and receiving payment.

a. Application and Designation Process

For the most part, the application and designation process went relatively smoothly. The following relatively minor issues arose and were resolved:

- One RPCH did not realize it had to discharge all of its inpatients upon conversion and re-admit them as RPCH patients. Doing so retrospectively created an administrative headache.
- There was a last-minute question in one state about whom the letter requesting RPCH certification should be sent to, then about the sequence and coordination of state designation and HCFA certification; the issue was who sends the final letter of determination to the RPCH to mark the beginning of its operations as a RPCH.
- One RPCH did not realize it had to obtain a new Medicaid provider number (this may vary by state).

- One RPCH that is county-owned conducted last-minute research to determine whether the hospital board has the legal authority to make the conversion request to the state.
- One RPCH learned that because of the way the state decided to implement its "bed-banking" provision, which allows RPCHs in the state to try operating as a RPCH for up to two years without giving up their ability to reopen hospital beds and convert back to a hospital, it would not be allowed the option of reopening beds.⁹

While some of these issues, such as the coordination of state and HCFA designations presumably arose only because these are the first RPCHs, it may be useful to make the other prospective RPCHs aware of other items such as the potential need for a new Medicaid provider number. A useful state technical assistance role would be to create a checklist for prospective RPCHs that includes details on the process and relevant contacts to help them through application and designation. The preceding list of issues should not be considered exhaustive; any such technical assistance list should be developed with further help from the existing RPCHs.

b. Certification Survey

The RPCHs reported mixed experience with the certification process. For RPCHs in West Virginia, the process was fairly smooth, and RPCHs in South Dakota and Kansas reported a less positive or negative experience, respectively. In West Virginia, the surveyors were perceived as reasonable and even helpful, and were able to address issues and questions as they arose. In contrast, the Kansas hospitals reported that the process was frustrating and difficult. Surveyors were perceived as not well-versed in RPCH rules, and in one case, seemed generally abrasive. Despite the generally smoother process in West Virginia, there was some confusion over surveying for swing beds: to become Medicare-certified, swing beds must be surveyed apart from the RPCH survey, and the

⁹The state decided to use the "available beds" figure that hospitals reported on their Medicare cost report prior to conversion, but the RPCHs did not know much in advance that this is how the measure would be implemented. Because this RPCH had gradually reduced the number of staffed beds in anticipation of becoming a RPCH, it reported few beds available on its cost report. Thus, the bed-banking law which was supposed to offer an option to convert back to a hospital, did not provide this RPCH with a real option.

OBRA requirements for a comprehensive assessment of patients are more stringent for a RPCH than a hospital.

c. Revising Policies and Procedures to Comply with RPCH Regulations

The RPCHs reported making surprisingly few changes in policies and procedures specifically to comply with RPCH regulations. One RPCH said tightening up its paperwork on patient transfers to ensure all relevant patient information is transferred is the only change it made to comply with a specific RPCH requirement.

However, all RPCHs had to, at a minimum, communicate with their staff to implement the three-day restriction on inpatient stays. At the time of our visit, physicians at one RPCH told us they observe variation from physician to physician in how the limit is applied to admission decisions, and we also saw variation between the RPCHs. At issue appears to be a clinical gray area: when deciding where to admit a patient, how certain does a physician need to be that the patient will only require a three-day stay? Physicians reminded us that recovery time varies from patient to patient for the same condition, and there is considerable uncertainty about the exact time needed for any particular patient. At one facility, certain physicians told us they took a very conservative approach, only admitting patients to the RPCH if they are fairly certain the stay would not exceed three days. But they reported other physicians at the same facility appear to have a less conservative approach, based on the condition of some patients who had to be transferred at the end of three days.

There were also differences in RPCH policies on handling patients at the end of three days. The RPCH's policy in one case is that physicians should only admit patients they expect to be discharged in three days, and at the end of three days, if the patient cannot be discharged, he or she will be transferred. This RPCH had no swing beds at the time of our site visit. In contrast, another RPCH reported that patients are sometimes admitted and end up requiring more than three days before discharge. When this occurs, it causes one of two things to happen: the patient is transferred to a swing bed, or the reason for keeping the patient in the facility is documented in a log (e.g., transfer

would likely worsen the patient's condition, snowstorm made travel dangerous). This RPDH has never transferred a patient at the end of three days just because the three-day limit had been reached.

d. Selecting a Payment Methodology and Obtaining Payment

Selecting the most advantageous payment methodology and obtaining payment are obviously key elements of a RPDH's ability to become financially viable. The inability of this first set of RPDHs to obtain normal RPDH payment for Medicare patients in the first months after their conversion inhibited their ability to manage their operations.

Methodology for Outpatient Payment. In particular, we observed some confusion by the RPDHs around their selection of one of two payment methodologies for outpatient payment. Two RPDHs had selected the all-inclusive method over the traditional cost-based payment method, although there was too little experience with either method at the time of our visit to compare the two. There are at least three issues, suggesting an unmet need for user-friendly technical assistance in this area.

First, we found that the rule about the lower of costs or charges is misunderstood. When we asked staff at one RPDH why they had chosen to continue cost-based outpatient payment rather than the "all-inclusive" payment method for outpatient care, they responded that the hospital's physicians believed they would no longer be able to charge self-paying indigent patients less than their Medicare patients if they chose the all-inclusive payment. However, this rationale is based on a misunderstanding of rules, since the program specifies that the lower-of-costs-or-charges rule--the rule to which the physicians were referring--would not be applied to RPDHs choosing the all-inclusive payment option.

Second, there is misunderstanding about when the facility may select a payment option. Two RPDHs were under the impression that they could begin by being paid for outpatient care by the traditional method, then decide to change their payment option to the all-inclusive method at some

point during the first year. However, according to program rules, a choice must apply for the entire fiscal year.

Third, there is a lack of clarity on what is counted as a visit under the all-inclusive payment option. Under the all-inclusive payment option, payment for outpatient services is determined by dividing the reasonable costs of RPOCH facility and professional services by the number of outpatient RPOCH visits. For one RPOCH, for example, the exact definition of a visit is important in determining which payment option is preferable, but the definition has not been made clear or finalized. Because the RPOCH operates a rural health clinic on-site and gets paid for these services separately, it has few traditional outpatient visits that are counted as part of the hospital. In fact, the RPOCH's emergency room handles some, but few, cases; most of its outpatient business is taking X-rays and providing other ancillary services for patients of the on-site clinic, which receives separate payment for regular services. Thus, if a contact with a physician, nurse practitioner, or physician assistant is needed to count a patient encounter as a "visit," then the per-visit payment under the all-inclusive option will be triggered only by an emergency room visit and thus will be an unstable source of financial support for the hospital's outpatient department. If a visit could include a laboratory or X-ray encounter, the financial picture would change, and this option might be preferred.

Obtaining Payment. Obtaining payment as a RPOCH was a difficult, frustrating process for these first RPOCHs because the fiscal intermediaries, organizations working under contract with HCFA to process claims and pay the RPOCHs, were not prepared to do this when the RPOCHs became certified. More specifically, the computer systems that are used to process and pay hospital claims were not capable of handling RPOCH claims when the hospitals became certified, and there were long delays--of a year or more for the first RPOCHs certified--in making the system changes needed to establish a normal payment process for the RPOCHs.

This problem with federal implementation of the program is a complex one. Ultimately, it appears to have stemmed from lack of coordination of tasks by different organizational units at

HCFA combined with a general lack of effective communication between (1) those at HCFA and the fiscal intermediaries who understand the program's goals and importance and (2) those who must make the detailed changes necessary to operationalize the payment system. This lack of coordination is evident from the fact that RPOCHs were certified by HCFA before a working payment process was established. The lack of effective communication of program goals and importance is better understood when one considers that many of the staff key to implementing program basics have not been involved in the program from the start and probably learned about the program goals indirectly from people in their organizations who have not been central to program development.

The full impact of the payment problems on participating facilities cannot be assessed yet, as they have only recently been resolved. However, at least some RPOCHs reported that they have not been able to financially manage their operations in their first year because of the payment difficulties. For example, while the RPOCHs received periodic payment checks from Medicare (in some cases after an initial break in payment of more than a month), there was no indication of which patients' care was being paid for.¹⁰ Without such indication, the RPOCHs cannot determine whether they are covering their costs. Further, they can bill neither patients for co-payments or deductibles, nor other insurers as they normally would. These financial issues are more critical in the context of a facility that is struggling to maintain financial viability and encourage community support.

3. Reasons for RPOCH Conversion

Strategic changes and the formal process of designation and certification are not well-linked in the program. In fact, the primary reason for seeking designation is the perceived financial benefit over alternative payment options.

Most often (six of eight cases), the most advantageous aspect of becoming a certified RPOCH is related to the EACH or to indirect benefits provided to the RPOCH made possible by the EACH

¹⁰This lack of reference to particular patients' care occurred because the fiscal intermediaries were processing the checks manually as an interim measure until the system problems could be addressed.

payments, rather than the RPCH payment itself. For example, one EACH has arranged to lease space from its RPCH for \$351,000 per year (it will provide long-term care in that space), another has agreed to a cash arrangement forwarding \$100,000 per year as well as in-kind assistance to the RPCH, and in a third the RPCH is attempting to shift full responsibility for emergency room coverage to the EACH in exchange for converting to a RPCH.

However, other factors and characteristics of program financing also prompted several facilities to convert:

- Cost-based payment for existing services was the incentive for one hospital with high Medicare contractual allowances.
- Outpatient payment was viewed as advantageous under the program relative to payment as a rural health clinic, since the service limits (e.g., no ambulatory surgery) and cost caps do not apply to RPCH as they do to a rural health clinic. Helping the EACH motivated this RPCH.
- The program was the only way for one facility to regain control of on-site primary care and hopefully expand it. State requirements would have otherwise effectively prohibited this were it not for the program.

D. SUMMARY OF CONVERSION PROCESS

At least for the first years of the program, RPCH designation has attracted the smallest hospitals that have very low and declining inpatient utilization, and that report fair to poor financial status--those near the brink of closure. Our case studies--which focus on the earliest of the RPCH pioneers--found that most of those that pursued formal designation and certification (seven of eight) also made major strategic changes to their operations that went far beyond program requirements. Only one did not make such changes. However, the program is only one factor that influenced the changes, and the timing of becoming a designated RPCH is, in general, not closely related to completing the strategic changes.

The case studies and monitoring report data suggest the following themes on the types of strategic changes that the RPCHs had made or were making:

- The RPDHs downsized their inpatient bed capacity. If they were still providing inpatient surgery, they discontinued this.
- Nearly all the case study RPDHs sought to shift their operations to expand in areas other than inpatient care
- RPDHs differ from one another in whether they are focusing most on expanding long-term care, specialty ambulatory care, or general primary care; overall, the number of LTC beds and the number of outpatient visits have increased.
- The case study RPDHs view stronger ties with community physicians as critical to their future viability, and so a majority brought a clinic or area physician practices under RPDH control, or they were planning to do so.

The process of becoming a designated, certified RPDH went relatively smoothly except in two areas. First, unlike the process in other states, the certification survey process in Kansas was problematic from the perspective of participating hospitals, who believed the surveyors were both somewhat abrasive and not very familiar with the program rules. State program staff in West Virginia, for example, were more careful to educate and involve certification staff in the program prior to the surveys.

Second, the first RPDHs were not able to receive payment as RPDHs upon conversion, and there were long administrative delays in rectifying the problems. Although it is too soon to assess the long-term effects of this problem, the absence of normal payment inhibited these small, struggling facilities' from managing their operations in the first months of their conversion.

E. GRANTS EFFECTS ON CONVERSION AND OTHER PROGRAM ACTIVITIES

The participating 1991 and 1992 EACH and RPDH grantees spent a total of \$7.71 million in federal grant funds. Although funds were originally awarded as one-year grants, the many delays in program implementation on the national and local levels caused most hospitals to request extensions. For the 1991 grantees, the average EACH and RPDH that spent any grant funds spent just over half of its funds in the first year. A majority of the expenditures went to communication systems, emergency transportation systems, and other equipment--primarily capital expenses. These categories

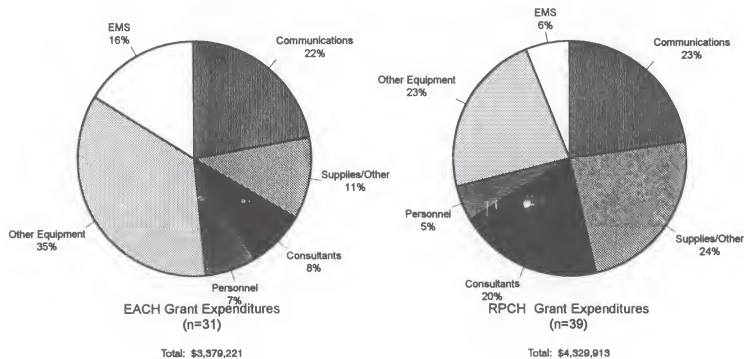
accounted for 52 and 73 percent of RPCH and EACH grant expenditures, respectively. The purchases ranged from items that filled basic needs of the facility (or, more commonly, of the community) to high-technology investments, such as an interactive video project that enables providers to diagnose patients from a remote location.

The grants were viewed as more important to participation by the RPCH grantees than by the EACH grantees we visited. However, the respondents said that the ongoing payment incentives offered by Medicare and the operational requirements will be more critical than the grants in their decision to convert to a RPCH. While none of the facilities developed specific estimates of conversion costs--viewed as conversion to a facility that meets the requirements of the program--they appear to be low, since most grantees are already operating almost as a RPCH. The conversion costs for the few facilities that are making major changes to their operations--converting in the spirit of the program or reopening--appear far higher in terms of planning costs (staff or consultant time), capital costs, and recruiting costs.

1. Types of Expenditures

So far, the 1991 and 1992 grantees have spent most of their grant funds on equipment and capital improvements related to communications systems, EMS, or other projects. This is true for both EACH and RPCH grantees. As shown in Figure III.3, EACH grantees tended to spend more on emergency transportation systems and less on subcontracts or consultants than RPCH grantees. Based on our site visits, much of the grant spending does not appear to be directly related to facility plans for conversion or program participation. We believe this is mainly a result of (1) the difficulties these facilities were having in affording the general improvements they need, (2) the fact that most 1991 grantees had not begun to think about conversion or network development prior to developing their grant application, and (3) the grantees' uncertainty about the program requirements and therefore their likelihood of participating as a RPCH or EACH. This is indicated by the large volume of requests to the HCFA project officer for permission to redirect budgeted funds.

FIGURE III.3
EACH-RPCH GRANT EXPENDITURES
September 1991 - March 1994



Source: Tabulations of EACH-RPCH monitoring report data.

2. Role of the Grants in Network Development and RPDH Conversion

In over half the case studies of converting RPDHs, EACH-RPDH grants clearly did not play an important role in the ability to convert to a RPDH either strategically or technically. That is, two of these facilities did not receive a grant, but chose to convert, and three others spent their grant dollars almost entirely on upgrades of medical and computer equipment that were not related to conversion in any way we could identify.

In the three other cases, the grants or at least a fair amount of the grant funds appear to have been more important in the conversion process:

- One RPDH's grant expenditures funded a study by a consultant that resulted in a report causing the administrator to change his mind about the hospital's direction, which ultimately led to conversion. This RPDH's expenditures on renovations were also probably important to becoming a potentially viable entity, given the age and original layout of the hospital building.
- An observer of one network's progress believes that the urban hospital that now manages the RPDH would not have been interested in managing it had it not had EACH-RPDH grant funding to be able to do renovations to help make it a more attractive facility. The facility likely would have remained a closed hospital (with no health care services on site), and a shortage of primary care in the area would likely have been exacerbated.
- One RPDH's grant funds spent on a consultant appear to have been important in the network formation process, and its expenditures on renovating the area that will house the RPDH were also probably needed to make the entity viable, given the original layout of the building.

Earlier site visits to hospitals show that in several cases, the grants appear to have played an important indirect role in network development and in the likelihood of conversion, even though their direct role in funding program-related activities was less clear. Grants were important to RPDHs for the following reasons:

- They gave hospitals a reason to meet, and in some cases to talk to EMS personnel; they broke down some barriers and started communication.

- Without the grant, the grantee would not have funded a study of its future options, which convinced the administrator that redirecting its focus to outpatient services is the solution to its long-term financial problems.
- Without the grant, the grantee would not have been able to fund planning for the expansion of its long-term care services--a shift it considers essential to its future viability.
- The grant gave the grantee community more leverage in negotiating with an urban tertiary hospital to reopen and manage the facility as a RPCH. Those we spoke with think that the urban facility, which would not be eligible for increased payment as an EACH, may not have been willing to assist the RPCH if the grant had not been available to make some initial physical improvements to the facility.
- The grant was used to hire both a network coordinator and outside facilitator to organize regular meetings that progressively included more hospitals and a wider range of facility and community representatives.

EACH grantees vary more in their assessment of the importance of the grant to their participation. For one with SCH status that had not been involved in other network efforts, it was an important factor. Another noted that although it would have participated without the grant, the grant raised the priority of network issues. Several were interested primarily for mission-related reasons, and the grant was not viewed as very important. Finally, although one EACH appreciated the grant, it views SCH status as the critical variable.

In sum, the grants were reported to be useful in bringing hospitals to the table in the process of network development. In a few instances, they provided the resources for very active networks. They were, nevertheless, primarily used for a wide variety of equipment needs; some, such as investments in telemedicine, appear to be premature and not well planned. Many of these purchases are indirectly related to the EACH-RPCH program--laboratory equipment, local transportation van, and supplies for a new ambulatory clinic. While a few facility administrators are frankly suspicious of involvement with another federal program, others quite openly indicated that they appreciate the "no strings" funds but have no intention of working on networks. In many respects, the program resembles the open-ended Transition Grants, which were used creatively for a broad spectrum of facility needs but were difficult to relate to specific federal objectives (Cheh and Wooldridge 1993).

In terms of actual facility conversion, the types of grant expenditures that appear to be important are costs for consultants, who bring an outsider's skills and perspective to a facility seeking change, and costs to convert old hospital space to new primary care-oriented space.

3. Conversion and Network Costs

The issue of conversion and network costs is greatly complicated by the wide variation in grantee interpretations of the meaning of conversion and network development. Also, conversion costs vary depending on the condition of the current RPCH facility and whether it is now open or closed.

a. RPCH Conversion Costs

The types of strategic changes that RPCHs have made are diverse. Very few of the changes are actually required under program rules, and it is too soon to be able to assess the success of the various types of changes in creating a financially viable facility for the future. In this context, the cost of converting to a RPCH becomes the cost of implementing the visions of the RPCH administrator and other key players--visions which may themselves have been influenced by the resources available.

In this framework, some grantees will not incur much cost at all in converting to a RPCH. For example, one case study grantee did not make major strategic changes in converting but mainly continues to function as it had before converting. A second grantee, which was part of the previous round of site visits, treats less complex inpatient cases (the operating room was only used 28 times last year for inpatient surgery) and offers extensive primary care services through an on-site clinic staffed by three faculty and several residents from a university about two hours driving time from its community. It also has 31 long-term care beds. It is considering the RPCH as a strategic option rather than a last resort--its finances appear to be stable relative to the other RPCH grantees.

Capital costs, and consulting and planning costs the two main types of costs incurred by converting facilities. RPCHs also incurred recruiting costs for physicians and mid-level providers, but we do not have detailed information on these amounts.

Capital Costs. Capital costs vary widely. The highest capital costs for a conversion--about \$4.3 million--were incurred by a facility that moved to another location. Previously housed in a traditional, underutilized hospital building, this RPCH grantee built a new building that was designed to function primarily as a long-term and senior care-focused facility. The new facility was built on the same property as a rural health clinic, though the two have separate administrative structures. The capital expenses, which include the new building and the mostly new lab, X-ray, and emergency room equipment, were funded through a variety of local, federal, and foundation sources. It is now operating in a way that is very close to RPCH requirements, although it has not made a final decision to formally convert.

Though several grantees incurred substantial capital expenses, they were far less. For instance,

- Renovation expenses to create a functional outpatient department in one RPCH with an old, underutilized hospital building were covered primarily by EACH grant funds and partly from a Rural Health Care Transition grant (\$104,000 capital costs for renovation-related activities).
- Another RPCH renovated hospital space for long-term care use. This RPCH had not been awarded a grant, but was able to use community tax dollars (levy funds) for this purpose.
- A third RPCH also found renovations necessary to create a functional outpatient unit, and it reported about \$51,000 in capital expenses for this effort, which was funded by the grant. One expense faced by this closed hospital was removal of old X-ray equipment, which cost \$7,000.

The preceding efforts are strategic changes made to reshape the old facility. But other grantees do not appear to have incurred similar types of capital expenses, although some argued that they needed to fix building problems (e.g., a leaky roof) or replace old equipment, which they had not otherwise been able to afford, in order to pass their RPCH certification survey or to provide good care under any future scenario.

Consulting and Planning Costs. Consulting and planning costs were significant for some converting grantees, and it appears from our case studies that the consultants' perspectives and

analysis played an important role in facilitating conversion and/or network development. For example, one of the hospitals making the most dramatic strategic changes (involving laying off 60 of 160 employees) hired a physician for six months to plan how the new RPCH facility could operate at minimal cost. This individual had managed the EACH's emergency department. This six-month hire cost the facility \$90,000. Although this was a sensitive issue with the community, it had some advantages: the decisions of a physician on minimum clinical staffing for the facility were viewed as valid; the physician was an outsider, who was not swayed by personal relationships between employees; and the arrangement was temporary, so that after organizing the lay-offs and cuts, the physician moved on and did not have to endure the inevitable local pain that such measures cause.¹¹ It is noteworthy that this physician had management as well as clinical experience.

More typically, the RPCH administrator is the key person planning and implementing the changes. The planning effort required to reopen a closed facility as a RPCH is clearly greater than that required to downsize an open hospital. For example, the staff time needed to plan the reopening of the hospital as a clinic is substantial and includes such tasks as negotiating for management of the clinic;¹² recruiting physicians; negotiating with area physicians to dissolve their practice and become employed by the new facility; lining up service contracts (for example, for hazardous waste disposal); finding staff of all types; and selecting and installing an information system. The staff costs of these operational planning tasks were not as great as they might have been because the tertiary facility that manages the RPCH used its existing personnel department, operational planning staff, and other internal resources.

Typically, grantees used consultants to supplement their strengths as follows:

- To conduct assessments of financial feasibility, e.g., to assist them in predicting the financial effects of becoming a designated RPCH

¹¹The \$90,000 for six months was reportedly the equivalent to this physician's former income.

¹²The hospital will be reopening as a clinic as an interim step to RPCH designation.

- To compare the RPCH option with any other options such as converting to a rural health clinic
- To conduct community needs assessments to identify what services the new facility might usefully provide to its community

In one network that faces a more extensive state designation process than others, the consultant also assisted the RPCH in developing a certificate-of-need application to the state. One state's program staff commented that RPCH grantees have also taken advantage of each other's expertise by obtaining the early applications for RPCH designation. The applications include analyses of community needs and financial feasibility, and are a matter of public record once submitted to the state.

b. Network Developments Costs

Network development costs vary by type of network. Most network costs have been low, generally because network structures are loose and their functions are not well-defined. However, some networks have found that they need a coordinator to plan and manage network operations (discussed in Chapter II).

Some EACH-RPCH communication linkage projects are underway and will affect network costs. Network-related communication efforts (not all complete) include teleradiology, compatible computers, a two-way interactive video system, and a cardiac monitor with viewing and interpretation between a RPCH and an EACH. One network we visited decided not to pursue a high-tech communication option (requiring fiberoptic cables) because of its high cost.

4. Effects of the Grant Program Reported by Grantees

The grant program may have assisted grantees in making beneficial changes even if they ultimately decided not to convert to a RPCH. This section discusses responses to the monitoring reports on which RPCHs recorded whether they observed changes in any of the areas we listed.

They were also asked to report on whether any changes they observed were a direct result of the program, an indirect result of the program, or not a result of the program.

Grantees reported the most positive change in four areas:

- 75 percent of all RPCH grantees reported an improved image in the service area
- 72 percent saw an increase in the number of outpatients
- 56 percent noted at least some improvement in their quality of care
- 56 percent improved their recruitment or retention of mid-level providers

Not all grantees attributed these changes to the program. As shown in Figure III.4, the areas with the greatest number of positive changes attributed to *at least indirect* effects of the program are:

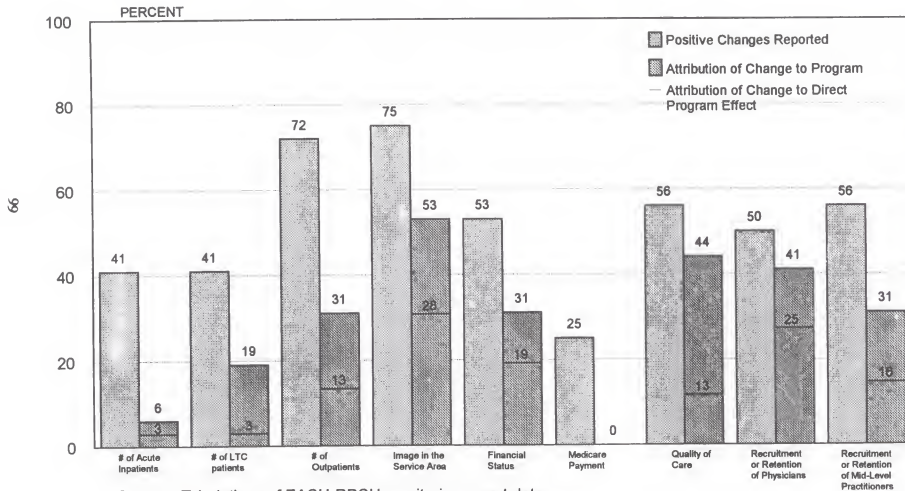
- Improved image in the service area (53 percent of grantees reported both positive change and attributed this at least indirectly to the program)
- Improved quality of care (44 percent)
- Recruitment and retention of physicians (41 percent)

Just under one-third of grantees reported both positive changes due at least indirectly to the program in recruitment or retention of mid-level practitioners and in an increased volume of outpatients. Far fewer grantees reported that the program *directly* resulted in the positive changes, making these findings difficult to interpret.¹³

The improved image of many of these hospitals in their service area may have resulted from the publicity associated with a grant award (see Cheh and Wooldridge 1993, for a discussion of this in the Rural Health Care Transition Grant Program). Given how facilities spent their grant funding, the most logical explanation for hospitals reporting improved quality of care as well as recruitment and retention may be that they replaced old equipment (thus improving quality for patients whose

¹³Improved image in the service area was still the leading change, with 9 of 32 grantees reporting both a positive change and that this was a direct effect of the program.

FIGURE III.4
CHANGES IN RPCH OPERATIONS:
PERCENT REPORTING ANY POSITIVE CHANGE



Source: Tabulations of EACH-RPCH monitoring report data.

care depended on such equipment), and/or that they were able to use the money for changes physicians wanted, thus improving their satisfaction.

Converting hospitals are more likely than nonconverting hospitals to have attributed positive changes to the program in only two areas, although in both cases it was by a significant margin:

- *Image in Service Area.* Half of converting grantees reporting positive change directly attributed it to the program. Less than one-third of the nonconverting facilities did.
- *Quality of Care.* Even though more nonconverters indicated positive changes in this area, half of the converting RPCH grantees directly attributed this improvement to the program, and less than one-tenth of the nonconverters did.

It is difficult to know what these responses imply about hospital choices to convert or about program effects. It is possible that grantees that found that the program improved their image in the service area believed they were then more able to make the difficult decision to convert to a limited-service model. For example, if the community's perception is that the facility is improving, the risks involved in converting may appear more worth taking. It is also possible that some converting grantees anticipated their decision to convert to a RPCH and began taking steps to change their operations prior to becoming designated, thus improving quality of care, although the case studies do not substantially support this hypothesis.

IV. MONTANA'S MEDICAL ASSISTANCE FACILITIES (MAF)

While the number of hospitals shifting licensure under the EACH-RPCH program has recently been increasing, Montana's MAF demonstration, an alternative model for limited-service hospitals, has longer operational experience. The MAF not only predates the EACH-RPCH legislation, but also has been the model for the federal program and several independent planning efforts in other states. Although MAFs are similar in many respects to RPCHs, particularly the "standalone" RPCHs allowed by HCFA's Final Rule, the demonstration has numerous unique characteristics and a strong identity as a Montana initiative.

This chapter reviews the MAF demonstration, emphasizing its similarities and differences relative to the EACH-RPCH model. This comparative approach is suggested by the policy issue of whether the two programs should remain localized experiments or be converted to one or two national programs.¹ We summarize the history and development of the demonstration, profile the characteristics of participating MAFs, review the key features of the Montana initiative as compared with those of the EACH-RPCH program, and report on implementation and operation. The analysis is based primarily on site visits in 1994 and subsequent interviews with the project director, Keith McCarty. It also draws on two previous evaluations (Gaumer, Gabay, and Geller 1993; and Department of Health and Human Services 1993). (Subsequent chapters cover statistical data on service areas and utilization--Chapter V--as well as financial impact--Chapter VII.)

A. HISTORY

The MAF is the first model of a limited-service rural hospital established by law. Created by the Montana Legislature in early 1987, two years before Congress established the EACH-RPCH program,

¹For a fuller discussion of issues surrounding national expansion of the programs, see Wright, Wellever, and Felt (1994), the background paper for a one-day conference, "The Next Generation of Limited Service Rural Hospitals" (Campion 1994). Policy alternatives are also discussed in Moscovice et al. (1993) and Alpha Center (1991).

the MAF model relaxes certain provisions in licensure requirements for very small, isolated rural hospitals. In Montana, these provisions are essentially the same as the Medicare conditions of participation. Following the passage of the act that created the MAF, the Montana Hospital Research and Education Foundation (MHREF) proposed a demonstration of the model's efficacy to HCFA. MHREF, a nonprofit entity associated with the Montana Hospital Association, negotiated a cooperative agreement with HCFA for the MAF demonstration in June 1988. In addition to certain reimbursement rules, waivers of the Medicare hospital conditions of participation were required before the demonstration could begin. Following a delay of two and one-half years, waivers were finally granted in December 1990, and within days the first MAF was licensed.²

Legislation passed by Congress in 1993 continued the demonstration and the waivers until "at least" 1997. The legislative extension also required the Secretary of Health and Human Services to make recommendations on legislative changes needed to make the MAF status of participating hospitals permanent. While such recommendations are not formally being developed, HCFA officials have actively consulted with congressional staff about this issue. In 1994 and again in 1995, Senator Max Baucus (D-Montana) sponsored legislation to make the MAF a permanent covered service of Medicare.

As a demonstration and not a congressionally authorized program, the MAF model is in key respects more complex than the EACH-RPCH initiative. From Montana's point of view, facilities are giving up their hospital license and operating under a new licensure status. For HCFA, MAFs remain eligible for Medicare payment but are granted waivers for specific items in the Medicare terms and conditions of participation. Like RPCHs, every hospital wishing to convert to MAF status must be recertified and licensed by the state (and also certified as having met the Medicare conditions of participation). Similar to West Virginia's RPCH, hospitals converting to MAF status must also apply for certificates of need (CON). Unlike RPCH applicants, each MAF applicant must also submit a

²The history and development of the program has been extensively documented. See Wellever (1989); Wellever and McCarty (1989); and Gaumer, Gabay, and Geller (July) 1993.

prior waiver application to HCFA, demonstrating among other requirements that conversion will be cost neutral (i.e., will not increase the total costs to Medicare). These waivers are technically temporary and terminate when legislative authority for the demonstration ends.

It is significant that the MAF model is a state initiative rather than part of a national program. Although the MAF is similar in many respects to the RPCH model, participants in Montana made clear in site visits that they uniformly wish to maintain the autonomy of the program and not see it absorbed into a national EACH-RPCH expansion.

B. OPERATING MAFS

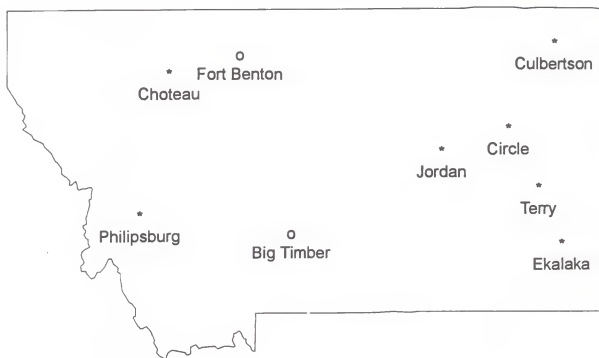
1. Summary of Operations

Seven MAFs are now operating in Montana, and two more are projected to convert before the end of 1995. Figure IV.1 shows their locations, and their conversion dates and sizes are listed in Chapter I, Table I.2. McCone County MAF in Circle was the first facility to convert (end of 1990) followed by two more hospitals in May 1991. These three facilities are exceptionally small. Two that had been closed prior to starting operations are staffed only with a physician assistant (PA) on site. Two more hospitals converted in 1992, another converted in 1994, and still another in early 1995. One or two more expect to become MAFs by the end of the year.

2. Profiles of MAF Sites

Previous evaluations of the MAF program have briefly described participating sites (Gaumer, Gabay, and Geller 1993; Department of Health and Human Services 1993). The following profiles account for developments in the three original communities and the expansion of the program. This information is the background to the implementation, utilization, and financial data presented subsequently in this chapter and in subsequent chapters.

FIGURE IV.1
LOCATIONS OF MONTANA'S MEDICAL ASSISTANCE
FACILITIES (MAFs)



*=MAFs operating as of 3/95
o=new MAFs projected for 1/96

a. McCone County MAF, Circle (converted in December, 1990)

With a population of 600, Circle is the county seat and the only incorporated town in McCone county (population 2,200). In eastern Montana its catchment area covers only the southern part of the county. The closest neighboring facility is 40 miles over unpaved roads to another MAF in Terry. The facility's closest ties are to a 45 bed hospital in Glendive, Montana, which is 47 miles away.

The hospital building replaced an older 60 bed facility and is larger and newer than the other three original MAFs. The new facility has 38 nursing home beds and 3 acute MAF beds. The nursing home is reportedly well thought of by the community and has a waiting list. The facility has recently been remodeled to increase the number of MAF beds from 2 to 3. There are no swing beds. The remodeling has also brought together under one roof the ambulatory clinic, dentist office and public health nurse. This modernization was financed by a \$500,000 interest-free loan from a railroad foundation.

Circle has had continuing difficulties in retaining an administration. The Glendive administrator initially served part time and was followed by an administrator employed by Glendive Medical Center and paid for by its Rural Transition Grant. Circle is now on its third administrator. It has a part-time PA and an older physician who is approaching retirement age. Another community resident is now receiving PA training.

b. Garfield County MAF, Jordan (converted May 1991)

With a population of 500, Jordan is the seat for an eastern county that is roughly the size of Connecticut with only 1,400 residents. (At its peak, the county population of 6,600 consisted of homesteaders settled in anticipation of a railroad that was never built.) It is cut off entirely from the north by the Missouri River. The closest neighboring hospital is the MAF in Circle, 66 miles distant. Most of its ties are to a 43-bed hospital 87 miles to the southeast in Miles City.

Built in the 1950's, the physical structure was out of date and inaccessible to the disabled. After increasing difficulty with attracting and retaining a physician, the hospital closed in 1987. A new

nursing home has recently been built next door using funds from Community Block Grants and a low-interest loan from the Farmers Home Administration. The SNF has 22 beds, swing beds, and 3 MAF acute beds. The outpatient clinic is staffed only by a PA and includes a public health nurse, dental clinic and counselling services. Medical supervision is provided by a physician in Miles City, 85 miles away. Supervision depends on frequent communication by fax.

The old facility had 18 nursing-home beds, but they were under-utilized and without a waiting list. The hope has been that a modern, attractive facility will create local demand. As of late, 1994, however, some of the long-term care beds were empty.

c. Dahl Memorial MAF, Ekalaka (converted May 1991)

By some measures Ekalaka is the most isolated MAF site. The town of 440 residents is a county seat in the extreme southeast corner of the state. It has only one paved road into it through which to reach the nearest other hospital in Baker (12 beds, average daily census of less than 1), located 35 miles away. The lack of paved roads means that the southern end of the county is not included in Ekalaka's service area. These patients travel 60 miles to a hospital in Spearfish, Wyoming (or 110 miles to Rapid City, South Dakota).

As with Jordan, the inability to recruit a physician led to the hospital's closure in June 1988. Ekalaka's MAF reopened with 3 MAF beds, which are also swing beds. It also has a 20-bed SNF and has concentrated the county's health care system (including a dentist office and pharmacy) in a single building. Due to its location, there are very low volumes of inpatient admissions and ambulatory visits. Unique among the MAFs, the community has faced difficulties recruiting and retaining a PA--there have been three different PAs between 1988 and 1991 when the facility opened as an MAF; four others since. Operations of the MAF and attached rural health clinic have been therefore periodically suspended at the loss of their PA. In early 1994, outpatient operations and nursing home medical supervision was supplied by locum tenens.

d. Prairie Community MAF, Terry (converted January 1992)

Unlike the other MAFs in the eastern part of the state, Terry is readily accessible by the interstate highway, exactly 35 miles from larger hospitals in Glendive and Miles City. With 930 citizens Terry is the only incorporated town in the sparsely-populated county. Service to residents in the northern part of the county tends to be shared with Circle. The physical plant is serviceable but crowded, with a SNF operating at capacity and room for only two MAF beds (one is actually an observation bed). There are no swing beds.

The ambulatory clinic is located in a separate structure built over 20 years ago with a grant from the Sears foundation. Terry lost its physician in 1990 and came close to closure in 1991 as it failed to attract a new doctor. The facility's shift to a PA-staffed MAF was encouraged by the same hospital in Glendive that supported Circle. A family practice physician supervising the PA left, and supervision transferred to a surgeon in Glendive. Recent changes in personnel have motivated Terry to shift some of the services purchased from Glendive to Miles City. Its current operations are reportedly essentially the same as before conversion. The PA has a busy office practice and plans have been made to start holding a weekly women's health clinic, staffed by a female PA from Glendive.

e. Roosevelt Community Medical Center, Culbertson (converted November 1992)

Culbertson (population 880) is located in the far northeast corner of the state on the North Dakota border. The western half of the county is in a large Indian reservation, and in fact there are 2 other small hospitals in the county (22 beds at Popular and 42 beds at Wolf Point). Similar to Terry it is less isolated than other MAFs from larger neighboring hospitals--39 miles from a 42 bed hospital in Sidney, and 45 miles from a 99 bed regional center in Williston, North Dakota.

In 1991, Culbertson lost its physician and was operating to its financial ruin on locum tenens. Rather than lose its license, the administrator convinced the board to convert to an MAF. It took only nine months after its first application to start operating as an MAF.

More than any other conventional MAF, this is a small hospital, which resembles many of the RPDH grantees. With 38-40 beds in a building which dates from the late 70s and a 10-bed acute MAF, the facility offers a much broader array of services than other MAFs. It also operates an active and successful home health agency. There is a facility-based rural health clinic certified by Medicare, which was recently converted from a free-standing status and made part of the MAF's cost basis. MAF operations began with a new physician, a full-time PA, and in 1994, a second PA was recruited.

Following MAF conversion there have been very few reported changes in operations. The facility looks and operates as it did as a hospital. Of particular note is its participation in a funded six-hospital telemedicine network. It actively presents cases for consultation with specialists in Billings, 300 miles away.

f. Granite County Hospital, Philipsburg (converted March 1994)

As the site of the first MAF in the western part of the state, Philipsburg (population 1,150) is located in a former mining town along a scenic highway, two hours from Helena or Missoula. The population of its service area base is beginning to expand with the type of new development characteristic of many of the more picturesque parts of the state. The hospital building, which is relatively old, is configured with 30 long-term care and four MAF beds. The nearest neighboring hospital is 30 miles to the southeast in Anaconda (35 beds with an average daily census of 2.4).

Prior to conversion, this was a very troubled facility. In 1993 it had 3 acute beds and only 18 admissions. In early 1994 it lost its hospital license after a long series of problems with certification. It apparently never had a proper budget (only a line item in the county budget). The state licensure authorities finally lost confidence in the administrator and lifted the license; the SNF unit was also under orders to correct significant outstanding deficiencies. It no longer has swing beds, which were also decertified. The single physician was reported to be unpopular and saw just a small share of the potential case load. According to state officials, the hospital's board did not appreciate the gravity of the problems or what its responsibilities were.

As a result of the licensure difficulties, the long-established administrator was replaced with the recently hired director of nursing. With the urging of state officials the new administrator and the board started working with MHREF, and applied for a MAF waiver. This change accompanied a previous arrangement for a bond-funded \$1.8 million renovation (financed by a bond passed with overwhelming local support) to rehabilitate the SNF wing and add 8 additional SNF beds. As before, the facility admits very few inpatients. State licensure authorities, however, reported they have never seen such remarkable improvement in a facility's operations. Deficiencies are now minor matters.

g. Teton Medical Center, Choteau (converted February 1995)

The most recent MAF is in a county seat located in the northwest quadrant of the state on the front range of the Rocky Mountains. With 1,800 inhabitants Choteau is larger than any of the other MAF sites. The nearest hospital is 41 miles, but residents have the choice of a better road to two regional hospitals in Great Falls, 63 miles to the south. Teton Medical Center has 14 acute beds and a 22 bed attached nursing home. The facility is the second largest MAF after Culbertson. As with Culbertson and Philipsburg, there is a resident physician, who reportedly does not have a busy practice.

Financial survival has been the core issue. The decision to convert took three years, far longer than for the previous MAFs. The hospital took the initial step of applying to the state for a CON for MAF status over two years ago, but then suspended further consideration of MAF status. The local physician was not in favor of the idea and the board was sporadically interested. Reimbursement was thought to be an issue since they tended to have a positive PPS margin and feared they might lose out under cost-based reimbursement. An underlying problem was the community's reluctance to acknowledge that the busier use patterns of the 1970s would never return.

h. Sweet Grass Community Hospital, Big Timber (conversion projected for September 1995)

Big Timber is located in south central Montana. Similar to Terry, it is on an interstate highway between Bozeman (58 miles away) and Billings (79 miles distant). The closest hospital is in Livingston (32 beds, average daily census of 3.2), 38 miles by interstate. With a population of 1,690, the town is second only to Choteau among MAF sites for the size of its service base. However, the arrival of the interstate has meant that the town has been losing out to its neighbors. Between 1980 and 1990 Sweet Grass County lost population while the county to the west, with a road south to Yellowstone Park, grew by 15 percent.

The community was attempting to operate both a SNF and an acute hospital in the same building under two separate, uncooperative boards. As with Choteau, conversion occasioned a significant and protracted local debate. While the hospital continued to operate in an old building, the community passed a bond issue sufficient to build a new two-wing nursing home. This freestanding SNF has been very successful. The hospital closed in 1993, and the community formed a task force. As a result, the new building is currently being renovated (funded by a interest-free loan from the Rural Electrification Administration) to accommodate MAF beds.

3. Summary of Characteristics of MAFs

What generalizations can be made concerning the Montana hospitals that have converted to MAFs? Table IV.1 supplements the brief profiles by comparing averages for RPCH grantees and 6 MAFs in three areas--facility size, utilization, and financial condition. (Greater detail regarding these data are provided in Chapters V, VI, and VII.) There are four areas in which the initial group of MAFs stand out.

a. Service to Frontier Communities

The MAF is clearly being implemented as it was designed, an alternative model for very small and isolated communities. No town has more than 2,000 residents. The initial MAFs are clearly

TABLE IV.1

BASELINE PROFILES OF MAGS AND RPCH GRANTEES
MSG (1989-1990)

Characteristics	Limited Service Hospitals		Other Rural Hospitals	
	MAFs ^a	RPCH Grantees ^a	All Rural Hospitals with Fewer than 26 Beds ^b	All Rural Hospitals ^b
I. Facility Services				
Number of Acute Beds	13.3	24.1	N/A	81.8 ^c
Percent with LTC Unit	100	57	86	74
Percent with OPD	33	34	55	60
II. Utilization				
Acute Discharges per Year	121	254	418	2,295 ^c
Acute Occupancy Rate	15	34	31	48
Percent Medicare	58	53	45	43
III. Financial Status				
Cost per Patient Day	\$1,745	\$1,649	\$724	\$534
PPS Margin	-45.7%	-45.0%	-8.8%	-7.0%
Total Facility Margin	-3.4%	-2.3%	0.4%	-2.0%

^aIncludes 4 of the original 6 MAFs and 34 RPCH grantees operating in 1989-1990.

^bAverage for hospitals less than 26 beds from Prospective Payment Assessment Commission, 1991. Averages for both comparison groups are unweighted within size category and therefore differ from weighted averages published in the Commission's annual *Report to Congress*.

^cOffice of Technology Assessment, 1990, Chapter 5.

serving less densely populated and more geographically isolated areas. Indeed, the demonstration has included some of the most isolated hospital locations in the nation.³ Montana's facilities are also clearly of a much smaller scale than that of most RPCHs. They also have a higher use of physician assistants. No RPCH to date has implemented the PA-only staffing used in three (and for all practical purposes four) of the MAFs.

b. Mini-Hospital Versus Infirmiry Models

In the previous chapter, we had noted that the EACH-RPCH program was generating a wide variety of local hospital and network models. Among MAF facilities, however, there appears to be a much simpler dichotomy between what can be termed an "infirmiry model" and a downscaled "mini-hospital." The former adds two or three acute beds to a nursing home and ambulatory clinic and experiences only scattered admissions. Indeed, unlike the EACH-RPCH program, every MAF has a comparatively sizable nursing home as the core function of the facility.

The mini-hospital model describes the two larger MAFs that have more beds, full-time physician staffing and a broader scope of services. Culbertson, in particular, has retained the option for inpatient surgery. Note that while the MAF has been thought to be important for the survival of their nursing homes, there is no evidence that it functions primarily as an infirmiry for nursing home residents.

c. MAFs As A Last Chance Choice

All MAFs resorted to the limited-service option only when there was no other alternative to closure (or, in two cases, method for reopening). As with the RPCHs, the hospitals ultimately faced either a financial crisis or an inability to meet requirements for continued licensure. Three of the first four MAFs found the model the only way to recruit a physician, later participants had or could

³In 1984 there were only 86 hospitals in the lower 48 states that were more than 50 road miles from their nearest neighbor (Wright, 1988). Four of the MAFs meet this criterion.

recruit a physician, but could no longer sustain the financial losses or (in one case) meet the quality standards for full licensure. State licensure authorities actively promoted MAF conversion as a safety net for tiny hospitals no longer able to survive.

d. Reconfiguration of Health Care Versus Reconstruction of Buildings

A notable feature of most of the MAF sites has been the energy and local support for replacing or rehabilitating out-of-date structures. The reconstruction, however, has been focused on providing suitable and attractive nursing homes (with additional effort added in two cases to move ambulatory care and MAF beds from older structures). The spate of physical reconstruction should not, however, be confused with a restructuring of local health care. Every respondent reported little change in facility operations following MAF conversion. Most of the hospitals were already essentially operating under MAF rules.

In sum, the MAF program has not actively pushed communities to reconfigure local health care. Instead, the program administration has sought to encourage and work with those communities that were independently rethinking their needs. In only one case did a special community task force reportedly emerge. Respondents did feel that participation in the program helped them secure construction funding.

C. COMPARISON OF KEY FEATURES OF MAF AND EACH-RPCH INITIATIVES

Although closely related, the RPCH and the MAF programs differ in significant details. The basic similarity in their features was summarized in the introductory chapter. Here, we concentrate on how differences in their models appear in the actual program implementation. Table IV.2 offers a side-by-side comparison of key features of RPCHs and MAFs. Key differences in the models are summarized below.

TABLE IV.2

COMPARISON OF MEDICAL ASSISTANCE FACILITY (MAF)
AND RURAL PRIMARY CARE HOSPITAL (RPCH)

	Medical Assistance Facility	Rural Primary Care Hospital
Geographic Limitation	Must be located in a county with fewer than six residents per square mile, or located more than 35 road miles from the nearest hospital.	Must be located in a rural area or in an urban county whose geographic area is substantially larger than the average area for urban counties and whose hospital service area is similar to the service area of hospitals located in rural areas.
Size Limitation	None	Not more than 6 inpatient beds or 12 inpatient beds if participating in the swing-bed program.
Length of Stay Limitation	96 hours (4 days) (Exceptions due to snow, flood, bridge repair or any circumstances beyond the control of the MAF are allowed through contact with the PRO and health department and are noted in the patient's record.)	72 hours (3 days) (Exceptions granted for inclement weather or other emergency conditions.)
Scope of Services	Mandatory services: <ul style="list-style-type: none"> • Inpatient medical care limited to 96 hours • Emergency medical care • Laboratory • Pharmacy 	Mandatory services: <ul style="list-style-type: none"> • Inpatient medical care for up to 72 hours • Emergency medical care • Laboratory • Radiology
Emergency Medical Services	Must be available and staffed on a 24-hour a day basis; minimum staffing is by emergency medical technician; registered nurses are on call and available within 20 minutes and medical staff members are on call and available within one hour from the time the patient first contacts the facility.	Must be "made available" on a 24-hour a day basis; staff with emergency care training or experience on call and available on site within 30 minutes.
Hours of Operation	24 hours/day when occupied by inpatients; when not occupied, ER is staffed 24 hours/day, 7 days/week by at least an EMT; RNs and physicians/NPPs on call.	24 hour/day when occupied by inpatients; when not occupied, emergency services must be "made available."
Admitting Criteria	PRO certifies medical necessity of all admissions.	A physician certifies that inpatient services were required to be furnished on an immediate and temporary basis.

TABLE IV.2 (continued)

	Medical Assistance Facility	Rural Primary Care Hospital
Referral Relationships	<p>Agreements required with others to assure range of services, for example:</p> <ul style="list-style-type: none"> • Hospital(s) • "Specialized" diagnostic imaging and laboratory providers • Skilled nursing facility • Home health agency • Licensed ambulance service • PRO or its equivalent 	<p>If a member of a network, written agreements required with an EACH for referrals, joint staff privileges, and data and communication systems. If not, EACH-RPCH agreements are not required.</p>
Governing Board	<p>Governing body is legally responsible for the facility and:</p> <ul style="list-style-type: none"> • Appoints and supervises the medical staff • Appoints chief executive officer • Prepares and adopts institutional plans 	<p>Governing body or responsible individual is fully responsible for determining, implementing, and monitoring policies governing the RPCH's total operation and for ensuring quality and safety of services.</p>
Medical Staff	<p>Composed of at least one physician and may also include one or more physician assistants and/or nurse practitioners; on call and available within one hour from the time the patient first contacts the facility.</p>	<p>Composed of at least one physician and may also include one or more physician assistants and/or nurse practitioners; on call and available on site within 30 minutes.</p>
Nursing Staff	<p>A registered nurse must be on duty at least 8 hours per day whenever there is an inpatient in the facility, and the director of nurses or a designee must be on call and available within 20 minutes at all times; a registered nurse must assign the nursing care of patients to other nursing personnel in accordance with patients needs and the qualifications and competence of the nursing staff available.</p>	<p>A registered nurse, clinical nurse specialist, or licensed practical nurse is on duty whenever the RPCH has one or more inpatients; a registered nurse must provide or assign to other nursing personnel the nursing care of each patient.</p>
Quality Assurance	<p>Governing body assures that facility has an effective, on-going, facility-wide, written QA program and implementation plan in effect that ensures and evaluates the quality of patient care provided; PRO concurrent review between 48th and 72nd hour of patient stay.</p>	<p>The RPCH has an effective quality assurance program to evaluate the quality and appropriateness of the diagnosis and treatment furnished and of the treatment outcomes.</p>

TABLE IV.2 (continued)

	Medical Assistance Facility	Rural Primary Care Hospital
Medicare Reimbursement	Facility-wide cost-based reimbursement, excluding distinct-part units.	Part A: Per diem for first year; year-one per diem increased by PPS update factor for subsequent years; plan for prospective payment system for RPCH inpatient services. Part B: Facility may elect one of two methods: 1) a cost-based facility service fee with reasonable charges for professional services billed separately, and 2) an all-inclusive rate combining both professional and facility services components; plan for prospective payment system for RPCH outpatient services.
Authority	Waiver from Secretary (1990); state legislation (1987).	Federal legislation (1989); Code of Federal Regulations (1993); state legislation in some states.
Extent of program	1 state; 6 facilities (approximately 15 percent of eligible hospitals); 1 additional site in process.	7 states; 44 RPCHs and 31 EACHs; Currently there are 5 operating RPCHs and 3 designated EACHs.
Grants	Cooperative agreement (approximately \$100,000/year since June 1988) to Montana Hospital Research and Education Foundation; no grants to facilities.	Grants to seven states and participating facilities to support conversion to RPCHs, EACHs, and networks (\$17.1 million awarded through 1993).

1. Geographic Limitation

RPCHs may be located in any rural area (non-MSA) or in urban counties whose geographic area is substantially larger than the average area for urban counties and whose hospital service area is similar to the area of rural hospitals. By comparison, the geographic limitation for MAFs is more narrowly restricted to frontier communities. A MAF must be located in a county with fewer than six residents per square mile, or be located more than 35 road miles from the next nearest hospital. The intent of the MAF restrictions was to target those rural facilities that were potentially most frail and still needed by their communities. In contrast, every rural hospital--and some urban hospitals--is conceptually eligible to become an RPCH.

According to computer simulations, approximately five times as many hospitals would be eligible for conversion to RPCHs than MAFs if the programs were expanded nationwide under existing rules (Christianson, Moscovice, and Tao 1990). However, if we consider the types of hospitals most likely to convert, the two programs target rural hospitals that are in different but more numerically comparable groups. As summarized in Table IV.3, the Christianson study suggested that the hospitals most likely to convert were ones with fewer than 20 beds and having either (1) 1988 losses of \$250,000 or more, or (2) an average daily census of 5 or fewer patients. These restrictions leave a potential RPCH population of less than 135. However, the experience of the West Virginia RPCHs suggest that larger hospitals can benefit and that those potentially interested may not be limited to 20-bed facilities.⁴

In contrast to RPCHs, there are 506 facilities nationwide that would satisfy the MAF criteria. As with potential RPCHs, isolation or location in a frontier county does not mean that a facility would necessarily wish to consider MAF status. For example, only 102 (35 percent) of the hospitals

⁴A more recent study used an alternative standard for hospitals nationwide that might consider RPCH conversion as those with an average daily census of 10 or less (Moscovice et al. 1993). Experience to date suggests that the restrictive standards are more realistic.

TABLE IV.3

ESTIMATE OF NUMBER OF HOSPITALS ELIGIBLE
TO CONVERT TO EITHER RPCH OR MAF
UNDER DIFFERENT ASSUMPTIONS

Program and Assumptions	Number of Hospitals
I. Rural Primary Care Hospital (RPCH)	
A. Qualifying Criteria	
1. All hospitals in non-metropolitan counties or exceptional rural areas in MSAs	2,700 ^a
B. Alternative Measures of Likely Converting Hospitals	
1. ADC of 10 or less ^a	690
2. 20 or fewer beds ^b	372
3. 20 or fewer beds and losses of \$250.00 or greater ^b	122
4. 20 or fewer beds and ADC of 5 or less ^b	135
II. Medical Assistance Facility (MAF)	
A. Qualifying Criteria	
1. Frontier County with population densities of 6 person/square mile or fewer ^b	309
2. 35 miles or more from next hospital	383
3. Population densities of 6 person/square mile or fewer or 35 miles or more from next hospital ^b	506
B. Alternative Measures of Likely Converting Hospitals	
1. Hospitals in Frontier Counties with 20 beds or less ^c	102
2. Hospitals in Frontier Counties or 35 miles from nearest neighbor with an ADC of 5 or less ^b	115

SOURCE: ^aChristianson, Moscovice, and Tao 1990.

^bChristianson, Moscovice, and Tao 1993.

^cTabulations from 1991 American Hospital Association, Annual Survey.

in frontier counties staff 20 or fewer beds.⁵ Of the 506 MAF qualifiers found by the Christianson study, only 115 had an average daily census of less than five patients a day, a number not that much lower than similar restrictive assumptions for the RPCH program.⁶

A major difference between the two programs is that the MAF criteria are heavily weighted toward frontier locations. Nationwide, only one hospital in a frontier county lies east of the Mississippi. Indeed, over half of all frontier hospitals are located in only 6 states.⁷ As a result of the targeted nature of the MAF criteria, only half of the RPCH grantees and half of the ten converting RPCHs would qualify for MAF designation.

2. Size Limitation

According to its authorizing legislation a RPCH can have no more than 6 inpatient beds. In publishing the Final Rule, HCFA raised this limit to 12 inpatient beds if the hospital is participating in the swing-bed program. In contrast, there is no limit to the number of beds that an MAF may possess. Despite the absence of a size limitation on MAFs, all of the facilities that converted voluntarily agreed to reduce the number of acute care beds. The first five MAFs took 34 percent of their pre-conversion beds out of service, relicensed 15 percent as swing beds, and 12 percent as long-term care beds (all MAFs are collocated facilities). The average size of a MAF (including swing beds but excluding long-term care beds) is 7.2 beds. The average size before conversion was 13.4. In contrast, the first five RPCHs to be surveyed all elected to keep the full allowable complement

⁵Data generated by merging the American Hospital Association's 1992 Annual Survey to list of frontier counties identified from the 1990 census data in the Area Resource Files. Note that the total number of hospitals in frontier counties drops from 309 in the 1988 data used by Christianson, Moscovice and Tao (1993) to 290 in 1991.

⁶The Christianson study used straight-line miles between centroids, adjusted for regional ratios of road miles to straight-line miles. A study using older data from 1984 found 269 hospitals nationwide isolated by more than 35 road miles. This would lower the number eligible for MAF status in Table VI.3 from 506 to approximately 422 hospitals (Wright, 1988).

⁷Calculated from the 1991 AHA Annual Survey. The states are Montana (38), Kansas (28), Texas (25), North Dakota (21), Wyoming (20), and South Dakota (18).

of beds--6 acute and 6 swing beds.⁸ They took approximately 65 percent of their beds out of service. The pre-conversion size of the RPCHs was larger than the MAFs. The average size of a RPCH prior to conversion was 34 beds. Only one of the RPCHs, but all of the MAFs, had 20 or fewer beds before conversion (see Table IV.4).

3. Service Limitation

The scope of services offered by both RPCHs and MAFs is not limited by any clinical criteria. Neither surgery under general anesthesia nor obstetrics, for example, are formally excluded. (The 1994 technical amendment did eliminate both of these for RPCHs.) In both programs, however, the range of services is effectively restricted by limiting acute inpatient stays to 72 hours (3 days) for RPCHs and 96 hours (4 days) for MAFs. The rules for both models allow for exceptions to the length-of-stay limit, but in neither case is the exception based on the medical condition of the patient. Exceptions are granted for inclement weather and emergency conditions, including for MAFs any circumstance beyond the facility's control that are noted in the patient's record.

Unlike the numerous complaints by clinicians and administrators about what they considered a restrictive and arbitrary 72-hour length of stay limit for RPCHs, no such complaints have been voiced about the MAF limit of 96 hours. MAF physicians and physician assistants interviewed during site visits felt that there was an enormous difference between limits of three and four days and would not want to operate under RPCH rules. (The question of the frequency with which patients bump into length of stay limits is discussed in the following chapter.)

⁸The EACH-RPCH authorizing legislation specifies a maximum of six acute beds. HCFA's regulations allowed an additional six swing beds, or for a total of 12 beds that could be used either for acute or extended stay patients. A future complication has been introduced by the 1994 technical amendments, which are not yet operational, but allow swing beds up to the facility's licensed number of beds. HCFA may interpret the new provisions as moving the restriction back to the original 6 acute bed limit.

TABLE IV.4

Downsizing Experience for RPCH and MAF Facilities
(As of March 1994)

Site	Acute Care Beds (including Swing Beds)			Long-Term Care Beds (excluding Swing Beds)			Current Swing Beds
	Previous	Current	Change	Previous	Current	Change	
A. RPCHS							
Philippi, WV	61	12	-49	0	60	+60	12
Ellinwood, KS	24	12	-12	0	0	0	9
Faulkton, SD	32	12	-20	0	0	0	6
Ransom, KS	18	12	-6	0	0	0	6
Webster Springs, WV	35	6	-29	0	0	0	6 ^a
Totals	170	54	-116	0	60	+60	39
B. MAFs							
Circle	20	2	-18	18	18	0	1
Culbertson	14	10	-4	40	44	4	4
Ekalaka	16	10	-6	21	22	1	5
Jordan	12	2	-10	18	18	0	0
Terry	5	2	-3	16	19	3	0
Total	67	26	-41	113	121	+8	10

^aSix swing beds are planned but not yet certified.

4. Emergency Services

The emergency departments of MAFs are required to be open 24 hours per day and staffed at least by an emergency medical technician. Registered nurses are to be on call and available within 20 minutes and members of the medical staff are required to be on call and available within one hour from the time the patient first contacts the MAF. These requirements are almost identical to the requirement that RPCH emergency medical services must be "made available" on a 24-hour per day basis. The term "made available" implies that emergency medical services do not have to be directly provided by the RPCH around the clock. When the emergency department of the RPCH is closed, however, it must make arrangements to assure that emergency medical services are available to patients who otherwise would have used the RPCH.

The emergency medical service standard for both RPCHs and MAFs is greater than that for all other hospitals. The provision of emergency services is considered an "optional hospital service" by the Medicare conditions of participation for hospitals. This is the only area of service provision where the requirements of limited-service hospitals are greater than those of nominally full-service hospitals.

5. Admitting Criteria

MAF admission criteria are more stringent than criteria for RPCHs. For a patient to be admitted to a RPCH, a physician must certify that patient services are required to be furnished on an "immediate and temporary" basis. Limitations on admissions depends on the exact interpretation of this phrase. It may be interpreted broadly to mean "acute and short-term," terms which are synonymous with the type of care typically rendered in small, rural hospitals, or it can be interpreted narrowly to mean "stabilize and transfer." Unique to the MAF is the condition that the Peer Review Organization (PRO) certifies that all admissions (not just Medicare) are medically necessary. The program rules do not require precertification of medical appropriations, but every attempt is made

by the MAFs to consult with the PRO prior to admission.⁹ The major limitation on prior consultation with the PRO are the hours of operation of the PRO.

6. Referral Relationships

The MAF demonstration appears to differ significantly from the EACH-RPCH program regarding requirements for structured linkages to larger support hospitals. MAFs do not face the *original* requirement that RPCHs be linked to supporting EACHs. However, sufficient flexibility has been subsequently introduced into the EACH-RPCH program so that all current MAFs could meet RPCH federal networking requirements. That is, the final rule promulgated by HCFA does not *require* network agreements and allows for "free standing" RPCHs.¹⁰ If, however, an RPCH is a member of a network, it is required to participate in any joint communications system. Despite the elimination of the mandatory networking criterion from the program rules, each of the seven states participating in the EACH-RPCH program view networking as an essential component of the program.

MAFs are required to enter into agreements with one or more providers participating in Medicare or Medicaid to provide services meeting the needs of its patients which the facility itself is unable to meet. Examples of the types of facilities with which a MAF may have agreements include, hospitals, skilled nursing facilities, home health agencies, licensed ambulance services, "specialized" diagnostic imaging, and laboratory providers. In short, MAFs are at liberty to form network relations with other providers through which it receives either clinical or administrative support services. In developing this role of linkage, MAFs resemble a free standing RPCH.

⁹Medical necessity should not be confused with the concept of medical appropriateness. Medical necessity means that the patient was sufficiently ill to require inpatient care. It does not mean that the PRO is responsible for declaring that a MAF is an appropriate site for the delivery of services.

¹⁰These free standing provisions should not be confused with the 15 independent RPCHs originally authorized in the EACH-RPCH legislation. This component of the program was never implemented by HCFA. The ability for states to authorize an RPCH without an EACH comes from an interpretation of section 1820(f)(1)(D) of the Final Rule. See Alpha Center, July 1993.

7. Nursing Staff

The RPCH rules call for a registered nurse, clinical nurse specialist, or licensed practical nurse to be on duty whenever the RPCH has one or more patients. The MAF rules require that a registered nurse, other than the director of nursing, be on duty at least eight hours per day whenever there are inpatients in the facility. Registered nurses must also be on call and able to respond within 20 minutes at all times. When a registered nurse is not on duty, nursing services must be covered by a licensed practical nurse. Both RPCHs and MAFs require that a registered nurse assign all other nursing personnel.

8. Quality Assurance

Both RPCHs and MAFs are required to have QA programs that evaluate the quality of patient care provided, but MAFs are subject to far more detailed oversight. Not only are all MAFs subject to annual certification visits, but the Montana Peer Review Organization (PRO) must also provide MAFs with concurrent reviews between the 48th and 72nd hour of the patient stay. As will be further discussed in Chapter VI, these reviews, particularly those on admission, have developed into more a utilization review than a QA procedure. The MAF conditions of participation rules are silent about the manner in which conflicts are resolved, but to date no significant disputes have arisen between MAFs and the PRO.

9. Medicare Reimbursement

The reimbursement for MAFs is much more complex than that for RPCHs. MAFs are reimbursed facility-wide on the basis of cost, exclusive of distinct-part units. HCFA allowed MAFs to receive cost-based reimbursement because 1) the project was a demonstration with a set date for termination, 2) insufficient data existed upon which to base a prospective rate, and 3) the costs of providing services under the demonstration with cost reimbursement were not considered material in comparison to the costs of providing service without the demonstration. In contrast, Part A

reimbursement for RPCHs is based on per diem costs for first year. In subsequent years, the year-one per diem rate is increased by PPS update factor. HCFA plans to develop a prospective payment system for RPCH inpatient services. RPCHs may elect one of two methods for Part B reimbursement: either 1) a cost-based facility service fee with reasonable charges for professional services billed separately, or 2) an all-inclusive rate combining both professional and facility services components. While MAFs are technically demonstration participants with no guarantee of permanent status, RPCHs face an unknown form of prospective payment to be developed in the future as mandated by the implementing legislation.

A further difference between the programs is that while no reimbursement is provided for MAF referral facilities, ECHs are paid as sole community providers, a cost-based methodology which is particularly advantageous to high cost facilities (see Chapter VII).

10. Summary of Differences

This detailed review illustrates the similarities between the formal structures of the MAF and EACH-RPCH initiatives. This is hardly surprising, since the EACH-RPCH legislation drew upon the earlier MAF model. Moreover, some of the differences are more apparent than real--particularly the federal EACH-RPCH requirement for linkages to a support hospital. In sum, there are five significant differences in the formal characteristics of the two programs:

- ***Length-of-Stay Limits.*** RPCHs face a length-of-stay limit of 72 hours (being modified to an average of 72 hours) compared to 96 for MAFs. The latter is clearly viewed by participants as a significant advantage, but in the future clinicians may prefer the flexibility of limits on average stays.
- ***Bed Limits.*** The RPCH limit of 6 acute plus 6 swing beds contrasts with the lack of any cap for MAFs. As implemented in Montana, there is little conflict between these standards since no MAF staffs more than 12 hospital beds. Extending the MAF program to other states could open the door to much larger hospitals, but, given the length of stay limits, is likely to include only facilities with sufficient swing bed capacity that can be used for longer-staying patients.

- *Limitation to Frontier Areas.* MAFs are clearly more restrictive in their eligibility criteria, which limit participation to unusually isolated hospitals. Half the RPCH grantees would not qualify as MAF demonstration sites.
- *Reopening of Closed Hospitals.* Unlike the requirement that RPCHs must apply within 12 months of closure, MAFs can be closed for longer, or need never have been a hospital. They must, however, pass Montana's CON review process.
- *Oversight of Quality Assurance.* The requirement that MAFs submit all admissions to the PRO for both admission and concurrent review has no counterpart in the EACH-RPCH program. Implementation in multiple states would require negotiation and development of review criteria.
- *Reimbursement Methodology.* The MAF has a much simpler system for Medicare payment. The RPCH is separately reimbursed for the prorated cost of inpatient an outpatient care and faces an unknown future prospective methodology. Reimbursing EACHs as SCHs introduces a potentially large and certainly unpredictable cost factor.

These design differences are not easily classified as making one program more restrictive than the other. They offer different points of flexibility and uncertainty when considering expansion to a national program. As we have seen with the EACH-RPCH program, however, the actual implementation of a program can modify the impact of regulatory structures.

D. IMPLEMENTATION OF THE MAF DEMONSTRATION

As a state initiative developed with the leadership of the Montana Hospital Association in close cooperation with state government, the MAF demonstration has a unique character that differentiates it from the EACH-RPCH program in key respects. Unlike EACH-RPCH participants, MAF clinicians and administrators interviewed, in three site visits were clearly enthusiastic about the demonstration. They have invested a great deal in its development, feel strongly that it is superior to the EACH-RPCH model, have nothing but praise for the project director, Keith McCarty, and report high community acceptance of operating facilities. Despite the limited grant support to the MHREF, there are seven operating MAFs, three others that filed CON applications with the state, and six more have seriously inquired about the program. State officials feel there are approximately 18 good candidates for MAF conversion.

The formal conditions of participation for demonstrations seldom provide a complete picture of how an experimental program actually operates. In particular, there are four noteworthy characteristics of the MAF program that have evolved over the demonstration period:

- Narrow focus on the goal of hospital preservation
- Close cooperation between the public and private sectors
- Pronounced regulatory character
- Development from a demonstration into an ongoing program

1. Hospital Preservation

Unlike the EACH-RPCH program, which lacks explicitly stated objectives but has a variety of state-specific goals, the MAF demonstration is specifically intended to save failing hospitals. Indeed, the program has a pronounced focus on the inpatient operations of these tiny facilities.

In June 1988, MHREF signed a one-year cooperative agreement with HCFA to design a demonstration. The initial goal was to develop a restructured model for hospitals as an alternative to what one observer termed the "jolt of closure" that would be felt in very small communities located largely in the sparsely populated eastern plains of the state.¹¹ To maintain access to hospital-based care, it was clear that the alternative had to be financially viable. A large international consulting firm was brought to develop a framework for financial feasibility studies. A local CPA used data from two hospitals to examine alternative reimbursement scenarios.

Although the notion of network development has never been a major consideration in the MAF demonstration, networks can and do exist. They are not, however, an integral part of the program. They take three forms:

¹¹The phrase is from Dr. Jon Christianson of the University of Minnesota, who along with Dr. Ira Moscovice, developed the initial evaluation design.

1. *Collocation of facilities* in a small hospital building can foster communication between home health providers, physicians, county health departments, and ambulance services.
2. *Multi-hospital cooperative networks* of the type developed for some EACH-RPCH grantees seek to strengthen members through joint projects and cooperative planning.
3. *Referral hospital arrangements* are a specific requirement for MAFs that must develop a transfer protocol with at least one hospital. MAFs can also arrange with other hospitals for courtesy privileges for medical staff, supervision of their PAs, and contract services such as technical support for dietary and medical record departments.

The MAFs in Circle and Ekalaka, centers for all health care in the county, are examples of the first type of cooperative arrangement. However, collocation of services for the efficient use of a building does not necessarily entail integrating the efforts of multiple, often competitive providers. The Culbertson MAF participates in the second type of network. It is part of a multi-facility teleradiology network and participates in interactive teleconferencing in another network. The latter includes Holy Rosary Hospital in Miles City, Deaconess Medical Center in Billings, and four other small rural facilities. While certainly not discouraged, development of such multi-facility linkages is independent of the MAF program.

The third type of arrangement is based on agreements between MAFs and larger support hospitals. For certification, MAFs need to have a written protocol with another hospital for patient transfers and other specific services. Different hospitals can supply different support services. Like RPCHs, MAFs can have management contracts and system ownership, but this again is independent of the program. In sum, the emphasis of the Montana demonstration is much simpler than the multi-objective efforts in some EACH-RPCH states, which focus primarily on strengthening local health systems by encouraging the formation of networks. Fostering this type of development is not central to Montana's efforts.

The program has also tended to focus on one aspect of MAF care, inpatient operations, and is certified as an inpatient operation only. Outpatient departments are optional. Data on long term

care and outpatient visits were never collected by the program coordinator, although these areas are clearly of greatest importance to facilities and the key to financial viability. EMS data also have never been collected. In general, ambulance runs are not a critical component of admissions or economic viability.¹² This orientation clearly reflects the emphasis in the terms and conditions on limiting inpatient care. The lack of such basic information complicates the assessment of the total economic viability of MAFs.

2. Public-Private Cooperation

Unlike the EACH-RPCH state programs, which are administered exclusively by state governments, the MAF demonstration was originated by the Montana Hospital Association and is administered by its closely related MHREF. Similar to arrangements in Kansas, the hospital association cooperates closely with the state government particularly with the Bureau of Certification and Licensure. According to interviews with Montana officials, MHREF and the Bureau communicate regularly, trust each other, and play unusually supportive roles. For instance, personnel from the state licensure authority aggressively "market" the MAF to failing hospitals; the MAF project director, Keith McCarty, has gone along on certification site surveys to interpret the guidelines, which he helped to write.

a. Certification Survey Process

The certification survey process is described as "pretty cut and dried." The project director tries to accompany surveyors on the first visit to new facilities in order to help interpret regulations for both surveyors and facility administrators. State officials reported being pleased with the results. As part of this process, Keith McCarty has developed an operating manual for MAFs, which has been

¹²Collecting comparable information on outpatient volumes is complicated by the need to differentiate between visits to the physician and visits to the outpatient department. This definition changes from facility to facility. For example, Circle owns a physician clinic but also sees people in its emergency room. In general, different revenue components of a facility are owned and operated by different facilities.

reviewed by the state's Health Facilities Division. The manual includes models of all necessary protocols and is on disk so that it can be readily customized by any hospital that wants to use it as the basis of its administrative rules.

The Health Facilities Division tries not to make annual recertification a punitive process, which it believes is often the case with these visits. The emphasis on cooperation is intended to encourage facilities to genuinely fix any problems instead of "papering them over" as is reportedly often the case in small hospitals.

b. Outside Consultants

The MAF demonstration, centralized in the offices of the Montana Hospital Association, is a strikingly self-contained program. There is no formal "task force," which has been a feature of most EACH-RPCH states. Similar to North Carolina's EACH-RPCH program, MHREF has used only a few consultants--primarily in the initial design phase. As part of the demonstration application to HCFA, an early community survey and subsequent evaluation design were conducted by the universities of North Dakota and Minnesota. Consultants initially provided simple "back of the envelope" financial analyses for potential sites. These were the only feasibility/impact studies used by converting hospitals. Newer MAFs (e.g., Terry and Philipsburg) reported that they converted without the benefit of feasibility studies. A consultant has also helped to prepare waiver cost estimates in applications to HCFA for each site, a function not needed in the EACH-RPCH program. The demonstration has otherwise been developed and implemented by the project director working alone.

c. Designation for Emergency Care

An important issue for MAF and RPCH communities alike is whether they will continue to have the blue "H" highway signs that identify hospitals. The Montana Highway Department, not the Department of Health, places these signs according to specific requirements. The cooperation

between the Health Department and MHREF has not included independent action by the highway department. In Montana, the issue is not licensure status but a 24-hour emergency room capability. MAFs are not rated as "Emergency Medical Facilities," and the blue "H" signs have been taken down—a symbol of loss for some communities. However, this is a case-by-case decision. MAFs can keep their signs if they meet emergency room standards. Unlike most EACH-RPCH states, EMS planning has not been integral to the MAF demonstration.

d. Multi-Source Funding

Funding for the demonstration has evolved as a unique blend of public and private efforts. The activities of the MHREF are funded by annual grants averaging \$110,000 (for a total of \$760,000) over the five years since 1988. This is considerably less than the annual awards under the EACH-RPCH program, and there have been no planning or conversion grants for hospitals. Half of the MAFs, however, have faced significant costs, particularly related to the rehabilitation or reconstruction of physical plants. These expenses have been funded by a combination of local bond issues, interest-free loans from railroad foundations, low-interest loans from the Farmers Home Administration, and grants from the Rural Electrification Administration. Other costs have been funded by HCFA's Transition Grants or foundation support for telemedicine. While facility rehabilitation is often not directly related to conversion, participation in the MAF demonstration and the attendant process of community involvement reportedly improved access to alternative funding.

3. Regulatory Orientation

A major difference between the MAF demonstration and most EACH-RPCH programs is that the role of regulatory control is more pronounced in the former. In part, this is a function of the waiver application required for each facility. The state has proposed a transfer of the waiver application function to the state licensure and survey authorities. The application process involves

submission of data to Keith McCarty followed by a formal "service description." A CON, required for long-term care but not hospitals, is required of MAFs.

The next step is to submit a CON application based on the "service description." The application follows the standard CON outline, which offers a facility needs assessment and describes the services to be offered. This application document is not intended, however, to serve as a strategic plan for the facility. There are usually several rounds of information requests and clarification. The CON application is submitted to the Department of Health, which initially required hearings. The first three MAF applicants received full review, a process that has now been simplified.

In addition to detailed review for facility designation, every admission is reviewed once or twice by the PRO. This process contrasts strongly with the rather informal designation process followed by most EACH-RPCH states. Notably absent in this process is a local needs assessment and financial feasibility study, such as required by West Virginia. The waiver cost estimates only purport to show that HCFA will be held harmless by each MAF, not whether the facility is viable. As the program has evolved, however, regulatory authorities have become more comfortable with it, and the stringency of oversight has relaxed.

A major self-reported obstacle in the MAF program is the waiver application process. Although there is no formal "waiver application," there are reportedly numerous rounds of questions and information flowing between Baltimore, Helena, and the prospective MAF. Any introducing of a new element by an applicant (e.g., Culbertson wanted to retain the right to do selected surgeries) creates further questions and delays. Moreover, each facility must demonstrate that its participation will be cost-neutral. This is difficult, especially given the formula, which does not include all savings (e.g., cost advantages to all entities with collocation.) Montana respondents believe that it would be far more reasonable to have a waiver for the entire program, as opposed to on a facility-by-facility basis.

While unique to its status as a demonstration, Montana's experience illustrates the advantages of state designation of limited-service hospitals without specific approval from HCFA. Keith McCarty

and HCFA have discussed turning over waiver authority to state and HCFA's regional office, simplifying and speeding up the process. If Montana's suggestions were to be followed, the demonstration would use a designation process similar to that for the EACH-RPCH program, where the state designates facilities, followed by a survey for Medicare certification.

4. Evolution from an Experimental to an Operating Program

Respondents in site visits noted several changes in the MAF program as it has evolved. As project director, Keith McCarty originally focused solely on helping hospitals and communities with the decision to convert, seeking not to involve himself in the day-to-day details of specific facilities. Over time, however, he has assumed a more active role, tackling problems as they emerge. While continuing to work with prospective MAFs, he has also become an all-around troubleshooter and fashioned what respondents describe as an "extraordinary relationship" with the health department. He has emerged in the eyes of operating MAFs as a central ombudsman.

All respondents reported that implementing and operating MAFs has turned out to be far more complicated than ever envisioned. The project director is on the phone to the state licensure authorities three or four times a week. He plays an intermediary role for MAFs that are encountering issues related to liability, insurance, reimbursement, certification, swing beds, PRO review, and operating rules. Examples of recent requests for technical assistance include the following: (1) What should the MAF do with a patient who is eligible for Medicaid in South Dakota when the state does not know what an MAF is? How should MAFs submit a claim? (2) Why were specific deficiencies noted on certification visits and what should an MAF do about it? and (3) Must MAFs renew a transfer agreement each year with new signatures?

The role of the Montana project director differs from the apparent assumption underlying the annual grants awarded by HCFA for EACH-RPCH and MAF program implementation. In addition to planning and implementing the new program, the director also plays a continuing supportive role for operating MAFs. The support hospitals in the EACH-RPCH program could provide some of this

technical assistance, as a decentralized alternative to the MAF director's functions. The degree to which such help will be either needed or forthcoming remains unclear.

E. SUMMARY AND CONCLUSIONS

In view of the tiny scale of its participating hospitals, Montana's experiment with MAFs has captured the attention of policymakers and health care providers. It has been the subject of several broadcast news shows and documentaries. Its early experience has also been evaluated twice and frequently cited by other states seeking to develop their own limited-service models. Both a HCFA Administrator and Secretary of Health and Human Services have made long journeys to visit MAFs. In recognition of the pioneering work, the Montana Hospital Association was honored in 1994 by the National Rural Health Association.

The continued success of the demonstration in helping struggling facilities convert to more sustainable structures affirms the earlier attention. This experience is particularly relevant since Montana's alternative hospital model clearly differs from the EACH-RPCH program in meaningful ways. The contrast offers potential lessons for the future development of limited-service hospitals.

According to participants, specific features have made the demonstration more acceptable than the EACH-RPCH model. There are fewer service restrictions than imposed on EACH-RPCH participants. Moreover, the MAF model focuses on saving small community hospitals on the brink of extinction without the complications of formal networking and goals of restructuring of local health systems. In sum, MAF requirements are viewed by Montana as more flexible (although this is more perception than reality). The fact that the program originated in Helena, not Washington, D.C., is viewed as a plus, as is the fact that it is administered by the state's hospital association. More important than claims of local authorship has been the skills of the project director in earning the trust of local communities and in forging a true partnership with the Department of Health.

As with all the EACH-RPCH states, the MAF program has found that working with small hospitals and their communities takes time, personal attention, and patience. Given the challenges,

Montana's steady progress in converting hospitals is particularly notable since it has required far less in federal grant funds. Its experience to date, however, underlines the previous finding of the critical importance of funding for state-level implementation.

Do these generalizations mean that the MAF should be made into a national program? Some notes of caution must still be raised. First, Montana's experiment is very much a "frontier" model that operates in isolated, tiny communities of the type not found in the eastern U.S. To be more generally applicable, the eligibility criteria would have to change. More importantly, the demonstration currently has experience with only a single facility of the scale likely to operate in most other settings.

Second, the Montana initiative is primarily a safety net for tiny, failing hospitals. It has not integrated the network development and local health system restructuring objectives that are viewed as an important objective of the EACH-RPCH program. Is this a missed opportunity? Expanded to other states, would the Montana model tend to merely prop up facilities that would remain frozen as they are? While conversion to MAF status has witnessed many improvements, particularly in long-term care, these developments are not integral to the demonstration.

Third, compared to RPCHs, MAFs are subject to more oversight and control in the state's designation process and with PRO review. Some of these regulatory features are due to the requirements for a demonstration rather than for an authorized program, but some, such as the CON process, are specific to the Montana model. The close supervision, both in formal structure and implementation, may not easily transfer to other state environments.

We are therefore left with questions about the full applicability of the MAF elsewhere. Facilities will tend to be larger, located in less isolated settings, and operate in different government institutional settings. With these potential differences in mind, we examine in the following chapters the differences between the two models in three areas--access to care, quality assurance mechanisms, and financial impacts.

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V. IMPACT OF LIMITED SERVICE HOSPITALS ON ACCESS

Maintaining access to basic health care services, particularly in small isolated communities, has been a highly visible health policy issue, one that has motivated numerous federal initiatives since the 1940's. As a recent review of federal policy notes (Office of Technology Assessment 1990, p. 9), "A major challenge in designing federal rural health policies is [to target resources] on those areas where residents' access to basic health care is sufficiently endangered to justify special protective measures." Although the policy issue is clear, the MAF and EACH-RPCH programs differ in their emphasis on access. The MAF demonstration is focused on maintaining access to care in isolated communities. MAFs must be either in frontier counties (less than 6 persons per square mile) or more than 35 miles from the nearest alternative hospital.

Unlike the MAF program, neither the federal EACH-RPCH legislation nor the regulations mention access as a program objective. Criteria for RPCH designation are also silent on care for underserved or isolated communities. Indeed, some of the state-level EACH-RPCH coordinators we interviewed commented on the program's limited impact on improving access to care. One state hospital association official was concerned that the EACH-RPCH program would be used not to restructure local health care systems but to "prop up" failing facilities that are redundant and should close. Another state coordinator regrets an initial RPCH designation that, in hindsight, appears to have limited impact on access. Unique among the seven states, South Dakota developed criteria for access-critical hospitals that are at financial risk and has sought to focus its program on these facilities. In general, state EACH-RPCH programs have been in the position of searching for hospitals willing even to consider limited service licensure rather than screening among willing candidates for those meeting critical local needs. Given the difference in stated objectives, the question addressed by this chapter is the degree to which the EACH-RPCH and MAF initiatives are improving or maintaining access to quality care.

Access is notoriously difficult to analyze because it depends upon both health care needs and utilization. Researchers generally rely on measures of utilization as proxy measures for access, but this can be misleading. For example, if a community has good access to care, utilization may be low because access to preventive services has kept them healthy. In the opposite case, if access is poor, patient utilization may be higher as the result of poor health status. As a result, variations in utilization among communities following improvements in hospital service capacities may be related to need rather than improved access. Given these difficulties we examine four established indicators of access (Millman 1993; Aday, Flemming and Andersen 1984; Rosenblatt and Moscovice 1982):

- ***Geographic Location.*** How far is the participating hospital from an alternative source of care? Are hospitals located in counties that are sparsely populated or have elevated proportions of low-income and minority residents?
- ***Service Capacity.*** How adequate are services, and has the program notably improved the scope and quality of care? Has the facility redefined its mission to meet local needs?
- ***Complexity of Case-Mix.*** Independent of services offered, what is the breadth of patients seen in the hospital? Will service restrictions reduce the type of patients cared for?
- ***Market Share.*** What proportion of local residents actually use the facility? Is the share of inpatient admissions appropriate to service capacity?

Our analysis of these issues is based largely on comparing data from a cohort of comparison hospitals with participating RPCHs and MAFs. The comparison hospitals described in Appendix A have the same approximate number of discharges and are located in the same regions as MAFs or RPCHs. The data are drawn primarily from the Medicare claims files, and augmented by geographic information, facility monitoring reports, and site visit observations.

A. LOCATION OF PARTICIPATING HOSPITALS

Isolation, location in sparsely populated counties, and service to low-income and minority groups often at risk of underservice are established indicators of impact on access. These indicators raise

such questions as: How far are the participating hospitals from alternative sources of care? How much farther would ambulances have to run or elderly patients have to travel for routine tests? Even if the area is not sparsely populated, does the socio-demographic profile of the residents place them at risk often left without adequate health care? We tackle these questions by examining several dimensions of isolation and the socioeconomic profile of the counties that are home to participating hospitals.

1. Isolation

The small scale of limited service hospitals particularly suits small, isolated communities. The question is: are the communities that have elected to participate unusually isolated? Geographic isolation can be measured in different ways: distance to the nearest neighbor, miles to the nearest referral center, or distance to the nearest major health care center in a MSA. These measures tap different dimensions of the impact of isolated settings. The first indicates the number of miles to the nearest alternative source of hospital-based care. However, this measure tells us nothing about the character of the nearest neighbor. For instance, the nearest neighbor of three of the MAFs is another MAF; yet one RPCH is a half mile from its EACH. The impact of isolation on access can in some instances be more importantly measures by the distance to a larger center that offers a wide range of services. The greater the distance, the more critical the role of a limited service hospital in emergencies and as a site for specialty care.

The first measure, number of miles to the nearest neighboring hospital, is shown in Table V.1. Almost three-quarters of RPCH grantees are within 24 miles of an alternative facility. Compared with all nonmetropolitan hospitals in the lower 48 states, RPCH grantees appear somewhat more likely to be separated by between 20 and 35 miles but are not more likely to be separated by greater distances. In contrast to RPCHs, only one of the eight MAFs is isolated by less than 35 miles. This difference reflects both the geography of Montana and the demonstration's strict eligibility criteria.

TABLE V.1
DISTRIBUTION OF RURAL HOSPITALS BY
ROAD MILES TO THE NEAREST NEIGHBOR

Distance (Miles)	All Rural Hospitals in 1984 ^a	RPCHs (n = 31) ^b	MAFs (n = 8) ^c
Less than 15 miles	41.9 %	32.2 %	--
15 - 24 miles	32.3	41.9	--
25 - 34 miles	15.9	19.5	12.5
35 - 39 miles	3.4	3.2	50.0
40 - 49 miles	3.3	--	25.0
50 + road miles	3.2	3.2	12.5
Total	100.0	100.0	100.0

SOURCES: ^aWright, 1988, Exhibit II.1. Note that the category of less than 15 miles for all rural hospitals in the lower 48 states are not road miles but point-to-point air miles. This translates into approximately 18 road miles. There is therefore some overlap between the first two categories.

^bWright, Felt, Christianson et al. 1992, Appendix B.

^cChapter IV.B

As a supplement to miles to the nearest neighbor, Table V.2 illustrates the distance to three different levels of referral center: miles to the nearest referral center, miles to a major center, and miles to the nearest MSA. Distances are measured in air miles (that is, the point-to-point, straight-line distance) between the geographic center of rural counties and the center of the nearest county offering referral services.¹ As noted in Table V.2, designation as a referral center is based on an index of 10 key hospital-based services (e.g., inpatient psychiatric unit, cardiac ICU, and radiation therapy) and the availability of physician specialties (e.g., orthopedic surgeon, anesthesiologist and radiologist). Two classes of centers are defined: a minor center with a score of four or more and a major center with a score of at least seven. Compared with all nonmetropolitan counties in the seven participating states, RPCH counties are slightly closer to both classes of referral counties and to the nearest MSA. The opposite is true of the MAFs. They are farther away than all rural counties in Montana for all three measures.²

The comparison of limited service hospitals shows that MAFs, not RPCH grantees, are serving more isolated communities. RPCHs appear to be slightly farther away from an alternative facility, but only by less than 35 road miles. They are closer to referral centers and metropolitan areas. Facilities in Montana are notably more isolated, a pattern that reflects, in part, the very low population densities of the eastern half of the state where more of the first MAFs are located.

¹Average miles from a referral center should be treated as a relative index of isolation. Distances are computed using county geographic centroids and inventories of health resources in the Area Resource File. A MAF or RPCH located in a county classified as a referral center is scored as being zero miles away. This happens rarely and most rural counties have their primary town in a centralized location.

²The results compare RPCH and MAF counties with all other rural counties. An issue is whether a more appropriate standard of comparison would be with only those rural counties with a hospital, or with a small hospital. We use the all county standard since the access issue is viewed not as aid to hospitals but as use of federal funds to help vulnerable populations.

TABLE V.2
COMPARATIVE ISOLATION OF LIMITED SERVICE HOSPITALS

Type of County	Miles to Nearest Referral Center ^{a,b}	Miles to Nearest Major Referral Center ^c	Miles to Nearest Urban Area ^d
A. EACH-RPCH Program			
RPCH Grantee Counties	35.9	55.7	95.8
All Rural Counties ^e	42.0	61.8	104.0
Ratio RPCH/All	.85	.90	.92
B. MAF Demonstration			
MAF Counties	64.1	107.2	128.5
All Rural Montana Counties	57.1	97.4	121.0
Ratio MAF/All	1.12	1.10	1.06

NOTES: ^aDistances calculated straight air miles between the geographic centroids of the hospital's county and the closest centroid of a county with the target characteristics. Centroids and characteristics are from the Area Resource File (ARF) 1993.

^bReferral centers are defined as a county having at least four of the following ten health services: cardiac catheterization lab, inpatient psychiatric unit, cardiac ICU, chronic or obstructive pulmonary disease therapy, radiation therapy, obstetrician/gynecologist, pediatrician, orthopedic surgeon, anesthesiologist, radiologist.

^cA major referral center has at least seven of the ten characteristics.

^dUrban areas are defined in terms of the centroid of the core city's county in a MSA.

^eAll rural counties include all counties in RPCH states excluding New York.

2. Demographic Profile

Differences in the socioeconomic profiles of RPCH grantee counties and all other rural counties in the seven participating states are important because although service to vulnerable populations is not a formal requirement in the EACH-RPCH and MAF programs, this feature would be an important benefit. The demographic information figures presented here include both 1991 and 1992 RPCH grantee counties.

HCFA appears to have provided RPCH grants to areas that are serving a slightly more vulnerable population (Table V.3). For example, the RPCH grantees are located in areas with characteristics thought to be less attractive to physicians, such as lower population density, slower growth, and poorer residents. Moreover, the higher proportion of low-income persons in these areas may make RPCH grantee counties more vulnerable to a reduction in services if alternatives are not readily available. Although these possibilities are slight to moderate rather than pronounced, the differences between grantee counties and other rural counties are consistent with a goal of maintaining access to health care in vulnerable rural areas. The most striking differences are that the grantee counties contain a slightly higher percentage of residents below the poverty level (19 percent versus 16 percent in other areas) and exhibited slower population growth after 1980 (0.1 percent versus 5 percent). Finally, RPCH grantee counties as a group have slightly more acute care beds per 1,000 population than the rural comparison areas. Thus, given the locations in which the EACH-RPCH program is being implemented, the goal to reduce the excess supply of acute care beds is an appropriate one.

More specifically, we studied the eight population and economic characteristics listed below, which vary dramatically across the EACH-RPCH program states. These differences may prove important in the program's ultimate impact. For example, a question for the evaluation is whether and how the program can be implemented in areas with a low population density and/or declining economy in a way that responds to and counteracts those problems. As shown in Figures V.1 through

TABLE V.3
THE EACH PROGRAM ENVIRONMENT:
COMPARISONS WITH THE RURAL UNITED STATES

	Nonmetropolitan United States ^a	Nonmetropolitan Areas of Seven States as a Group ^b	All RPCH Grantee Counties ^b
Population Characteristics (1990)			
Population per square mile	23.0	23.4	14.6
Race/Ethnicity (percent of total population)			
White	88.4	86.2	86.5
African-American	9.4	9.2	11.4
Hispanic origin	2.7	4.7	1.9
Age (percent of total population)			
65 or older	14.8	14.3	14.4
75 or older	6.4	6.1	6.2
No high school diploma (percent of population age 25 or older)	29.8	29.5	30.5
Economic Characteristics			
Percentage Change in Population, 1980-1990	+3.6	+5.1	+1
Poverty Status (1989)			
Percent below poverty	15.7	15.9	18.9
Percent below poverty age 65+	16.1	16.4	17.1
Percentage point change in poverty rate 1979-1989	-.1	+.5	-.3
Health Care Supply			
Short-Term Community Hospital Beds per 1,000 Population	3.8	3.8	4.5

^aThe population counts and age breakdowns for the nonmetropolitan U.S. are from 1990 Census data in the Area Resource File. The population growth rate is slightly understated by reclassification of a few counties as MSAs. Race/ethnicity, education, and poverty characteristics for the nonmetropolitan United States are from the Current Population Survey (CPS) for 1990, except for education, which was for 1989, since 1990 data were not yet available. CPS sources included Bureau of the Census, *Poverty in the United States: 1990* (P-60, No. 175), *Measuring the Effect of Benefits and Taxes on Income and Poverty: 1989* (P-60, No. 169-RD), *Characteristics of the Population Below the Poverty Level: 1979* (P-60, No. 130), and *Educational Attainment in the United States: March 1989 and 1988*. Acute care bed supply was calculated from 1988 bed-supply data from the American Hospital Association survey data summarized in the Area Resource File.

^bState and county Census data for 1990 were provided by state data centers and were supplemented by the 1991 Area Resource File (beds to calculate bed supply, and land area to calculate population density). Averages for the seven states and all RPCH counties are weighted by population.

V.4, the differences between the program states are larger than the differences between the RPCH grantee counties and other rural areas in those specific states. For each key characteristic, the variations for nonmetropolitan areas can be summarized as follows (patterns are illustrated for only four indicators):

- **Population Density.** (Figure V.1). The rural population densities of South Dakota and Colorado are less than seven persons per square mile--less than one-third the aggregate 23 persons per square mile across all the program states. In contrast, North Carolina's rural population density of 78 persons per square mile is more than three times the aggregate figure, and West Virginia's density of 55 persons is nearly two-and-a-half times the aggregate figure.
- **Racial/Ethnic Composition.** (Not shown). In contrast to the largely white population of the other rural areas and RPCH grantee counties, North Carolina's program population includes four RPCH grantee counties that have a high percentage of African American residents (averaging 45 percent).³
- **Education.** (Not shown). The rural populations of the majority of program states are better educated than rural populations nationwide; fewer than 25 percent of residents over age 25 do not have a high school diploma, compared with 30 percent nationally. However, rural residents in North Carolina and West Virginia are less educated; 36 and 38 percent of their rural populations, respectively, do not have a high school diploma. In West Virginia's RPCH grantee counties, the figure climbs to 44 percent.
- **Proportion of Elderly Residents.** (Not shown). The rural population of most program states contains about the same proportion or fewer elderly than the rural population nationwide. However, the proportion of elderly in the RPCH grantee counties in South Dakota and Kansas is somewhat higher--21 and 19 percent, respectively.
- **Population Growth.** (Figure V.2) The rural population of four program states (California, North Carolina, Colorado, and New York) grew between 1980 and 1990, while the rural population of the other program states (Kansas, South Dakota, and West Virginia) declined. The declines in the RPCH grantee counties were more severe. For example, RPCH grantee counties in Kansas lost 6 percent of their population, more than double the loss rate of the state's total rural area.
- **Poverty Rate.** (Figure V.3). The rural poverty rates of the states and of the RPCH grantee counties vary substantially. The rural poverty rate of New York is lowest--13 percent--and West Virginia's is highest, at 22 percent.

³The proportion of African Americans in North Carolina's RPCH grantee counties as a group is similar to the proportion in its other rural counties.

FIGURE V.1
STATE-TO-STATE VARIATIONS
IN POPULATION DENSITY

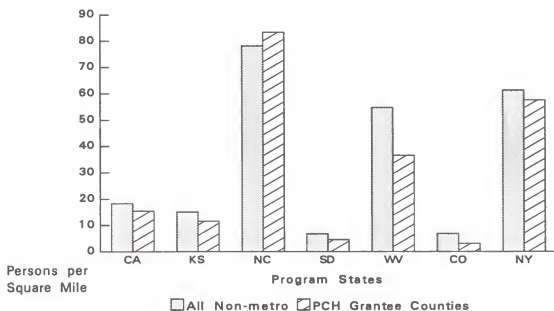


FIGURE V.2
STATE-TO-STATE VARIATIONS
IN POPULATION GROWTH

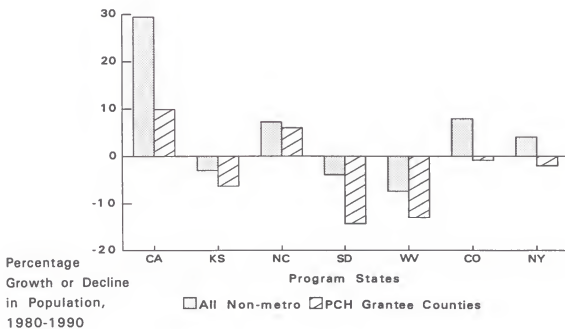


FIGURE V.3
STATE-TO-STATE VARIATIONS
IN POVERTY RATE

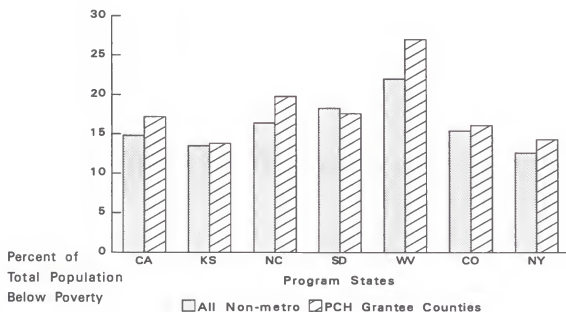
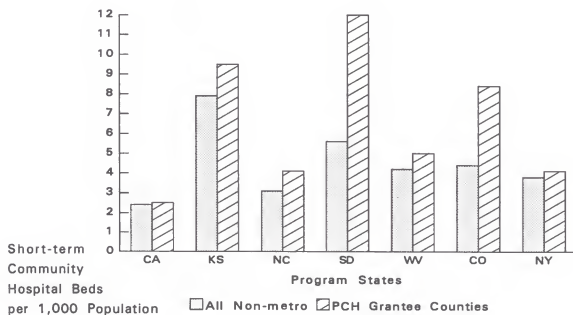


FIGURE V.4
STATE-TO-STATE VARIATIONS
IN ACUTE CARE BED SUPPLY



- *Change in Poverty Rate, 1980-1990.* (Not shown). Interestingly, two of the states with relatively high 1990 rural poverty rates (North Carolina and South Dakota) have lower (improved) poverty rates than in 1980. The rate declined (improved) even more in the RPCH grantee counties. Conversely, in the states with rural poverty rates that increased (worsened) between 1980 and 1990 (California, Kansas, West Virginia), the increase was greater in RPCH grantee counties.
- *Acute-Care Bed Supply* (Figure V.4). The acute care bed supply per 1,000 population in Kansas, South Dakota, and Colorado is more than double the national rural figure of 3.8. The supply in California, North Carolina, and New York is near or below the national figure.⁴

Combined, these data suggest that compared to all rural counties, those counties with a RPCH grantee are slightly poorer, less densely populated, and (in the two upper mid-western states) have higher proportions of elderly. In the two southern states of North Carolina and West Virginia residents of RPCH counties are relatively less educated and more likely to be from a minority group. While these patterns are consistent with service to somewhat more disadvantaged residents, the data also indicate why RPCH hospitals tend to be in poor financial shape. In every state, the growth of their home population base lags behind that of other rural areas. The reduced market potential of these stagnant service areas is compounded in some states by lower average incomes and higher poverty. Finally, in all seven states the RPCH grantees are operating with an overall excess supply of beds--the ratio of hospital beds per 1,000 population is above the average for rural counties. The downsizing provisions for RPCHs appear generally consistent with the grantee's environment.

B. SERVICE CAPACITY

One of the objectives of the EACH-RPCH program is to use a network with an EACH to strengthen the clinical service capacity of the small hospitals. Many grantees used the funding to expand their equipment and capabilities. Our examination of service capacity in this section covers

⁴Note that Kansas and South Dakota, whose bed supplies are relatively high, also have a higher-than-usual elderly population, partially offsetting the extent to which these states have an "oversupply" of beds. Also note that the figures for Kansas may be influenced by the fact that the participation of that state's hospitals in the swing bed program is usually high. Hospitals with swing beds may be less likely to close those beds even if they are rarely used for acute-care purposes.

the changes in service capacity as reported in monitoring reports by RPCH grantees. Since MAFs were not asked to complete similar forms, the analysis focuses on the initial stages of the EACH-RPCH program. We also examine the broader issue of facility restructuring to meet local needs, comparing the very different models followed by participating hospitals.

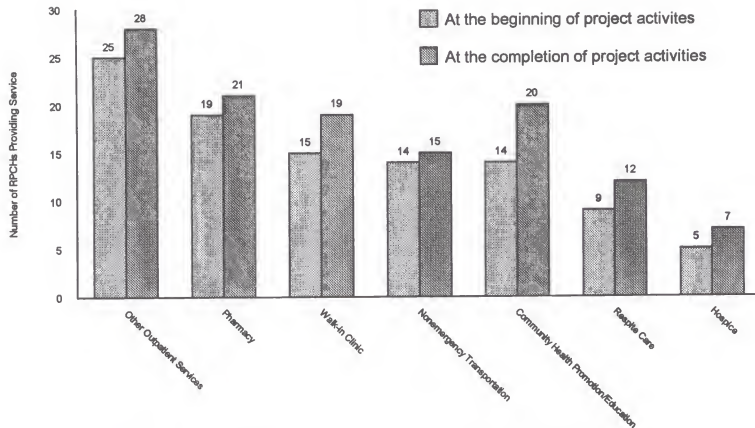
1. Changes in Services Offered

The grants, the strategic planning encouraged by the program, and the new links to larger hospitals should all act to improve hospital resources.⁵ Figures V.5 and V.6 summarize changes in the scope of services offered by RPCH grantees by comparing lists of specific services checked in their initial and final monitoring reports. The observation period for changes in services is brief, averaging only 18 months. Nevertheless, there are enough reported shifts in services to indicate directions of reorganization by RPCH grantees.

As reported previously (Chapter II, Figure II.3) only half of grantees thought that their services had improved in general, and less than half of these thought that the change was directly related to the program. One quarter reported an overall negative change in services offered. The patterns in Figures V.5 and V.6 reinforce this mixed result since grantees reported almost as many decreases as increases in services offered. (The fact that the same hospital could report several changes means that the total of positive or negative changes need not add up to the overall result reported in Chapter II.) In general, services that were expanded are centered mostly around outreach for primary care--visiting nurses, walk-in clinics, transportation, community health education, and other outpatient services. Expansions in some of these areas (e.g., visiting nurses, transportation) combined with improvements in hospice and respite care add up to better services for the frail elderly. Shifts

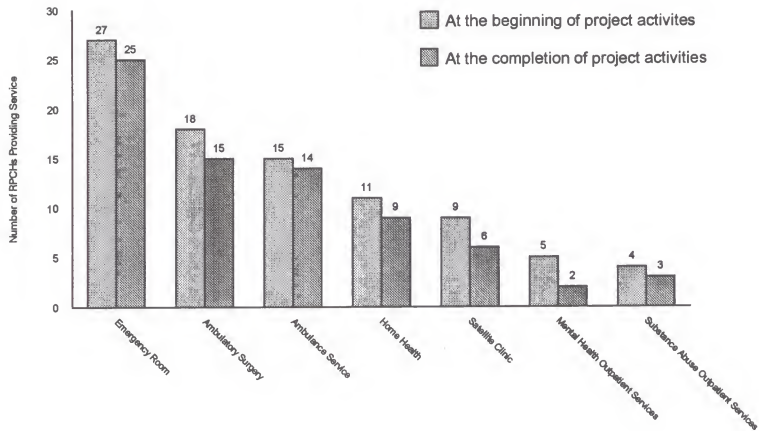
⁵Changes are calculated for 32 RPCH grantees between using their first and last monitoring reports. For details see Appendix B. Hospitals were scored as increasing or decreasing a service by comparing replies to identical questions in their first and final reports. Changes in facility administrator could lead to differences in interpretation between the two reports. Comparable data for MAFs are not available. However, neither offered the resources for service expansion nor emphasized network development.

FIGURE V.5
NONACUTE CARE SERVICES WITH NET INCREASES



Source: Tabulations of EACH-RPCH monitoring report data for 32 RPCH Grantees.

FIGURE V.6
NONACUTE CARE SERVICES WITH NET DECREASES



Source: Tabulations of EACH-RPCH monitoring report data for 32 RPCH Grantees.

reported by four or more hospitals occurred only in two areas--community health promotion and walk-in clinics.

The decline in services shown in Figure V.6 includes some surprises, particularly two priority areas for the program--emergency rooms and ambulances. Despite the observed investments in communication equipment and teleradiology, and initiatives in some states to improve EMS planning and operations, there is no self-reported evidence that, for most participants, the program prompted short-term expansion in emergency services. Note however, the fact that *hospitals* did not offer ambulance service does not mean that the EMS in general did not improve. Many of the grants were intended to improve local emergency systems. However, only 16 of the grantees thought that there had been positive changes in the adequacy of emergency transportation, one-fourth of these did not attribute the changes to the EACH-RPCH program.

Although state coordinators reported encouraging instances of new satellite clinics, overall, few RPCH grantees attempt to operate them. In fact, the number of such clinics declined further over the grant period. This loss is similar to the drop in outpatient care for substance abuse and mental illness. The fact that the latter two services are seldom offered by small rural hospitals illustrates a significant limitation in the data. We do not know how the changes among RPCH grantees compare with trends for similar non-participating hospitals.

Perhaps a better indicator of changes in service capacity is not whether RPCH grantees started a new service, but whether they expanded an existing capability. For a listing of key services, Table V.4 displays: (1) the proportion of grantees reporting a service at the start of the grant period, (2) the percent of grantees reporting an actual expansion of the service during its grant period, and (3) the proportion reporting they still planned to expand the service at the end of the grant period. In all but one of the 18 services, reported actual expansion was far below stated intentions. The three services with the largest number of reported expansions were health promotion and education in the community, miscellaneous outpatient care, and laboratories. Otherwise, only a small minority

TABLE V.4
MEASURES OF IMPROVED SERVICES
OF RPCH GRANTEES

Service	Percent with Service at Grant Start-Up	Percent Reporting Actual Expansion	Percent Reporting Plans for Expansion at End of Grant (n=)
I. Outpatient			
Ambulatory Surgery	55	26	26
Walk-in Clinic	48	26	42
Satellite Clinic	9	15	26
Alcohol/Drug Abuse	4	3	13
Mental Health	5	3	13
Other Outpatient	79	41	45
II. Emergency			
Emergency Room	83	15	16
Ambulance Service	48	21	16
III. Community-based LTC			
Home Health	11	21	45
Hospice	17	6	23
Adult Day Care	--	6	29
Respite Care	28	18	26
Occupational Therapy	--	6	19
IV. Community Outreach			
Non-emergency transportation	45	21	26
Health Promotion/Education	45	44	74
V. Ancillary Services			
Pharmacy	59	6	6
Laboratory	100	32	29
Dietary and Nutritional Services	100	12	19

reported increased capacity to meet local health care needs, but the proportion of positive changes is much greater than that for new services.

In general, it appears that grantees expanded into generally profitable lines, such as specialty clinics (not shown) improving the ambulatory primary care offered at the hospital and doing more in low-cost community outreach. Some participants have simultaneously pared back on services that small, rural hospitals often have difficulty providing--mental health care, surgery, and 24-hour emergency service. These changes generally occur over less than two years, and their direct ties to the EACH-RPCH program are unclear. We can conclude, however, that if the program is to substantively improve service capacity, this will happen as a result of the longer-term improved financial stability offered by the program, not from short-term grants.

2. Facility Restructuring

Both the MAF and EACH-RPCH initiatives offer rural communities an alternative hospital model--a new entity operating under different licensure rules. A key question is the degree to which the first examples of these converted facilities represent new structures. Have they undergone fundamental changes? Have they reconfigured traditional hospitals to meet community needs? Site visits to MAF and RPCH hospitals, and interviews with state program personnel indicate wide differences in the degree to which newly relicensed facilities have undertaken significant restructuring.

Felt and Wright (1993), suggested that RPCH communities were considering at least two distinct models. The first and most common was the "mini hospital", which hoped to sustain its present role in the region's health care delivery. Except for limits on census, case-mix, and length of stay, the organization of care was not to be radically restructured. Network ties with the EACH would hopefully improve the availability and quality of specialty and emergency care. The second model, the "primary care center," emphasizes ambulatory primary care and plans only limited use of inpatient beds. The inpatient capacity would be primarily for stabilization and observation.

Examples of the "mini-hospital" are emerging among the initial crop of converted MAFs (Culbertson) and RPOCHs (Faulkton, SD, and Ransom, KS). Examples of the "primary care center" are also appearing in eastern Montana and North Carolina. This simple dichotomy of models, however, captures neither the complexity of individual facilities nor the degree to which health care systems are actually being changed. Ransom, Kansas, for example, may offer a mini hospital, but it has also made innovative efforts to use its EACH linkages to offer uncomplicated obstetrical care. It has also developed much needed new ambulatory services in mental health. The MAF at Terry may be characterized as a primary care center, but the new licensure status merely improves the reimbursement for its long-established role.

Although both initiatives have focused on inpatient and emergency care, the major restructuring that has accompanied facility conversion involves the expansion of primary, and even more important, long-term care. Webster Springs, West Virginia, and Sea Level, North Carolina, are examples of new construction for expanded ambulatory care. Webster Springs remodeled the entire first floor of its older hospital building into a primary care clinic and has attempted to reorganize two independent physician practices into a facility-based primary care clinic. Sea Level added 37 long-term care beds for a total of 66 nursing home beds. It then remodeled an adjoining primary care clinic, which is staffed by the EACH, in order to create a new X-ray department, satellite laboratory and community pharmacy. As the financial advantages become evident, others may follow the lead of Culbertson in converting free-standing rural health clinics or independent physician practices to facility-based clinics with salaried physicians and PAs.⁶ Stabilizing the financial position of clinicians may also greatly improve their recruitment and retention. Half of RPOCH grantees report improved recruiting and retention of physicians, although only 25 percent find the change directly related to the program. We have as yet no long-term evidence that this is the case.

⁶Both MAFs and RPOCHs are currently paid on a reasonable cost basis without the caps on per visit costs applied to medicare-certified rural health clinics (RHCs). See Chapter VII for details on financial provisions.

In long-term care, four MAFs have been able to completely rehabilitate or construct their attached nursing homes. Broadus, West Virginia, used the program to convert a 60-bed hospital into a 60-bed nursing home. Scotland Neck has received national attention for its efforts to develop an alternative facility (Kushner, Bernstein and Dihoff 1992). It has now opened a new \$4.2 million building which collocates 12 RPCH beds, 60 nursing home beds, and 20 supported living units, as well as a primary care clinic and a fully equipped emergency room. MAFs in other communities such as Choteau and Culbertson have created or greatly expanded home health care programs.

In sum, some of the new limited service hospitals have been substantially reconstructed from traditional configurations to facilities focused on primary or long term care. North Carolina and Montana host notable examples of collocation strategies. Three points emerge from these pioneering efforts. First, there is nothing unique about the new roles and configurations. Rural hospitals have received a steady stream of advice as to the necessity of rethinking their missions and diversifying their services (Mick 1992; Rosenblatt and Moscovice 1982). What is not yet clear is the importance of the flexibility granted by the MAF and EACH-RPCH models in helping hospitals to develop into new, viable entities. Strikingly, few hospitals have elected to take advantage of the flexibility. To date only three of the MAFs and none of the RPCHs are staffed only with a physician assistant or nurse practitioner. No facility yet operates on a less-than 24 hour basis. The prevalence of attached nursing homes has meant that there are few cost advantages to most of the flexibility offered by either of the limited service hospitals.

Finally, the reconfiguration emerging in the initial cohort of converting hospitals has seldom been related to the primary care and emergency system roles emphasized in both the MAF and EACH-RPCH models. The long-term care needs of all communities participating in the MAF and RPCH initiatives are substantial, and all but a few of the facilities are primarily devoted to this mission. Leveraging the greater visibility and financial stability offered by conversion to reduce nursing home

waiting lists, improve the quality of care, and develop support for community alternatives to institutionalization may prove the single greatest accomplishment of limited service hospitals.

C. COMPLEXITY OF CASE-MIX

What types of patients are actually seen by MAF and RPCH hospitals? One concern of communities and physicians is that the limited service hospital concept would actually reduce the capacity to meet local needs by restricting length of stay, surgery, and obstetrics. In this section, we look at the profiles of RPCH and MAF utilization prior to conversion. We examine the diversity of DRG mix, the proportion of their cases that run more than the maximum length of stay, and what would be lost by conversion to limited service hospitals?

1. Profile of Medicare Inpatient Stays

Small hospitals appropriately admit a comparatively narrow range of low acuity cases. According to the Prospective Payment Assessment Commission (1993), rural hospitals with fewer than 50 beds have an average Medicare case mix index of only 1.03, far below the national average of 1.42 or the average of all rural hospitals of 1.17. Moreover, since the advent of PPS, this index has been increasing for small rural hospitals at only one-third the national annual rate of 3 percent. Small rural hospitals care for higher proportions of elderly (particularly those over 80 years old), and are generally likely to keep them longer, but they are less likely to perform surgery or other procedures (Adams and Wright 1992, Lemrow et al. 1990, Garnick and Short 1985, Hogan 1988).

Recent work by the University of Minnesota's Rural Health Research Center on the case-mix of very small hospitals has called into question the viability of three- or even four-day limits on length of stay (Wellever, Moscovice, and Chen 1993; Moscovice et al. 1993). As illustrated in the first section of Table V.5, when the discharges of all 690 hospitals nationwide with an average daily census of less than 10 are pooled, the top 15 DRGs account for half of all Medicare discharges. The average length of stay for every one is longer than three days, and only three fall below four days.

TABLE V.5

COMPARISON OF 15 MOST FREQUENTLY DRG^s BETWEEN ALL SMALL RURAL
HOSPITALS AND LIMITED SERVICE PROGRAM PARTICIPANTS
MEDICARE FY 1991

Rank	DRG #	Description	All Small Rural Hospitals ^a (n = 690)				RPCH Grantees and MAF ^b				Ratio of RPCH-MAF to All Small Hospitals	
			% of Admits	Average LOS	% Cases LOS > 3	% Cases LOS > 4	% of Admits	Average LOS	% Cases LOS > 3	% Cases LOS > 4	Average LOS	% Cases LOS > 4
1	089	Simple pneumonia & pleurisy, age > 17, w/cc	8.5	6.2	79.4	64.5	9.5	7.4	87.5	74.5	1.19	1.15
2	127	Heart failure and shock	7.9	5.3	57.9	44.9	9.0	6.3	71.0	57.8	1.19	1.29
3	140	Angina pectoris	4.2	3.1	37.6	23.7	4.4	3.4	37.3	21.0	1.10	0.89
4	014	Specific cerebrovascular disorders except TIA	3.9	6.2	57.3	46.3	4.1	7.8	78.8	64.5	1.25	1.39
5	182	Esophagitis, gastro & misc. digestive disorders, age > 17, w/cc	3.7	4.2	57.3	40.1	3.9	5.0	65.9	47.3	1.19	1.18
6	096	Bronchitis & asthma, age > 17, w/cc	2.8	5.0	51.5	39.9	3.4	5.3	70.3	50.0	1.06	1.25
7	296	Nutritional & misc. metabolic disorders, age > 17, w/cc	2.8	5.4	61.1	47.6	2.4	6.0	67.4	52.6	1.11	1.10
8	320	Kidney & urinary tract infections, age > 17, w/cc	2.5	5.6	76.7	59.9	2.2	7.3	87.9	71.0	1.30	1.18
9	079	Respiratory infections & inflammations, age > 17, w/cc	2.4	7.8	81.7	69.7	2.5	9.3	89.4	79.6	1.19	1.14
10	088	Chronic obstructive pulmonary disease	2.3	5.0	58.9	44.8	3.1	6.0	74.9	58.9	1.20	1.31
11	138	Cardiac arrhythmia & conductive disorders, w/cc	2.1	3.8	51.0	34.1	2.3	4.6	48.8	37.2	1.21	1.09
12	174	G.I. hemorrhage, w/cc	2.0	4.7	67.1	48.9	2.4	6.4	70.9	57.5	1.36	1.17
13	090	Simple pneumonia & pleurisy, age > 17, w/o cc	1.7	5.1	67.2	50.7	2.1	9.1	85.7	68.1	1.78	1.34
14	243	Medical back problems	1.6	4.9	71.2	52.5	1.5	6.6	75.6	58.5	1.35	1.11

TABLE V.5 (continued)

Rank	DRG #	Description	All Small Rural Hospitals ^a (n = 690)				RPCH Grantees and MAFs ^b				Ratio of RPCH-MAF to All Small Hospitals	
			% of Admits	Average LOS	% Cases LOS > 3	% Cases LOS > 4	% of Admits	Average LOS	% Cases LOS > 3	% Cases LOS > 4	Average LOS	% Cases LOS > 4
15	183	Esophagitis, gastro & misc. digestive disorders, age > 17, w/o cc	1.5	3.3	43.8	27.0	1.2	3.7	36.2	29.0	1.12	1.07
		All others	50.1	N/A	N/A	N/A	46.1	6.3	61.7	48.8		
		All Discharges	100.0	N/A	N/A	N/A	100	6.3	67.2	53.3		

^aSample of 690 rural hospitals with an average daily census of less than 10. Drawn from Moscovice, Wellever, Sales et al. 1993, Appendix I. Average value calculated as for pooled cases across all hospitals.

^bSample of 34 RPCH grantees and six MAFs for a total of 40 hospitals with discharges in FY 1991. Calculated from pooled discharges from calendar year 1991 Medpar files.

If we look at the proportion staying longer than four days, only two of the top 15 DRGs have less than one-third the cases. The Minnesota team estimated that if there was no change in physician treatment patterns, a 72-hour limit would generate reductions of 49 and 70 percent of all Medicare patient days (Wellever, Moscovice, and Chen 1993).

The second panel of Table V.5 compares the case-mix patterns for RPCH grantees and MAFs with the Minnesota findings, which are based on a group of somewhat larger rural facilities. Hospitals in the EACH-RPCH and MAF programs, which are even more dependent on a few DRGs, have understandable objections to length of stay limits. The average length of stay for the top 15 DRGs averages about 20 percent longer than that in the Minnesota study's hospitals. An average length of stay for participants of 6.3 days suggests drastic changes in admission and treatment patterns. Since half the cases in these tiny hospitals stayed longer than 4 days, the group as a whole clearly experiences even larger proportional cuts in utilization than estimated in the Minnesota study.

The data in Table V.5 does not take into account the pronounced variations among facilities. Pooling all discharges gives greater weight to the experience of larger hospitals. Table V.6 therefore shows the characteristics of the top 15 DRGs in 1992 for RPCHs and MAFs relative to a comparison cohort drawn from the participating states. (For details, see Appendix A.) Because small hospitals differ dramatically from year to year in observed case-mix, some of their length-of-stay differences could be due to variations in case mix. The averages in Table V.6 are therefore calculated by adjusting for inter-facility differences in case-mix and calculating length of stay and related measures as if each hospital has the same case-mix.⁷ Even with these changes, it is clear that the RPCH grantees, with an average stay in 1992 of 5.5, days face a considerable challenge with a 72-hour limitation. This average length of stay is statistically no different from that for their nonparticipating small neighbors. It is also clear that the RPCH grantees are unusually dependent on a narrow band

⁷To adjust for case mix, we pooled all discharges from study and comparison hospitals for the top 15 DRGs and calculated their percentage distribution. Average length of stay was then calculated for each facility using the pooled percentage shares as weights.

TABLE V.6
COMPARISON OF CHARACTERISTICS FOR TOP 15 DRGs

Characteristics ^a	EACH-RPCH Program		MAF Demonstration	
	RPCHs (n = 34)	Comparisons (n = 72)	MAFs (n = 6)	Comparisons (n = 12)
Top 15 DRGs as:				
Percent All Discharges	52.8 %** (7.4) ^b	49.7 %** (7.4)	52.2 % (11.1)	45.2 % (5.3)
Percent All Days	52.8 %** (9.7)	48.8 %** (9.8)	56.9 %* (10.6)	47.2 %* (6.6)
Length of Stay for Top 15 DRGs:				
Average	5.5 (1.5)	5.2 (1.0)	4.6 (0.8)	4.2 (0.7)
Percent > 3	55.2 % (14.6)	57.9 % (10.7)	46.7 % (13.2)	46.5 % (9.4)
Revenue for Top 15 DRGs				
Average per Case	\$3,361 (795)	\$3,181 (692)	\$2,610 ** (349)	\$3,131 ** (496)
Percent Total Inpatient	55.6 %*** (7.4)	50.2 %*** (9.0)	58.2 %** (8.8)	47.6 %** (8.0)

^aTo control for differences among facilities in case mix, all measures are standardized to a common weighting for the top 15 DRGs. These weights for the percentage shares within the top 15 shares were computed by pooling all program and comparison hospitals and subsequently applied to each observation. Source is the calendar year 1992 MEDPAR files.

^bStandard deviations shown in parentheses.

*Significantly different at the .06 - .10 level.

**Significantly different at the .01 - .05 level.

***Significantly different at the .01 level.

of cases.⁸ In 1992, more than 55 percent of their Medicare revenue came from just 15 DRGs. The questions raised by these data are: What will happen to patients as a result of facility conversion? Will they be diverted to larger hospitals, transferred, or converted into swing bed stays?

2. Response to Conversion

Limited operational experience and lags in data collection and processing make it impossible to examine the current patterns of converted facilities. However, two hospitals, the MAF in Culbertson and RPDH in Faulkton, South Dakota, have some initial data on discharge patterns. We can analyze how many patients have reached the three- and four-day limits and what has happened to the number of transfers.

Table V.7 presents utilization data from these two relatively high-use limited service hospitals. Although the average length of stay at the RPDH is 2.5 days, two-thirds of all patients stayed the maximum of three days, and 69 percent of these patients were transferred to swing beds at the end of the third day of acute care. Another 21 percent of the RPDH's patients were transferred to a larger hospital. In contrast, the average length of stay at this MAF is 3.1 days, slightly longer than the average 72 hours that will be implemented for RPDHs. The longer 96-hour limit means that only one-half of the patients discharges from the MAF had a four-day stay. Although information on transfers to swing beds is not available, the transfer rate to other hospitals for this MAF is one-third that for the RPDH (7 percent compared to 21 percent).

According to site visits with other newly converting facilities, it appears that the patterns in Table V.7 are typical. No one reported a noteworthy increase in transfers. The diversion of admissions that would otherwise occur is difficult to gauge, since decisions to divert patients are typically made by different personnel in the emergency room, ambulance crews, or over the phone in response to

⁸The MAFs have shorter average stays than RPDHs. However, by 1992, the MAF facilities include both the earliest converters and those still operating as hospitals prior to their shift in status in 1993 and 1994. Unlike the RPDHs, the shorter MAF stays reflect a mixture of pre- and post-MAF conversions.

TABLE V.7
ADMISSION DATA FROM FAULKTON
RPCH AND CULBERTSON MAF

	Faulkton S.D. RPCH Sixteen-month Period (9/93 - 1/94)	Culbertson MT. MAF Four-month Period (10/92 - 1/94)
Inpatient Volume		
Admissions	127	163
Admissions per month	25.4	11.6
Average daily census	2.1	1.2
Length of Stay		
Mean LOS	2.5	3.06
Distribution LOS		
1 day	17.3 %	15.9 %
2 day	15.7 %	16.6 %
3 day	66.9 %	15.3 %
4 day	--	49.7 %
5 day	--	2.4 %
Discharge Status		
Percent transfer to another hospital	21.3 %	6.7 %
Percent transfer to swing beds	46.5 %	N/A
Revenue Source		
Percent patients days from:		
Medicare	81.5 %	64.7 %
Medicaid	1.3 %	8.2 %
Self-pay	--	4.0 %
Private Insurance	17.2 %	23.0 %

patient calls. There appears to be a concerted effort to "aggressively" use swing beds as a method of continuing care without moving the patient. Hospital administrators and physicians reported during site visits to both MAFs and RPDs that the standard of care for patients in swing beds remains essentially the same as when they were classified as acute stays. This response has economic implications, as discussed in Chapter VII, for hospitals, physicians, and the Medicare program. It also means that the notion of a time-limited length of stay has in practice no binding restriction.

D. MARKET SHARE

One of the most basic indicators of the role of a local facility in health care is the degree to which residents actually use the hospital. Calculating these market shares is complicated by the need to control for the fact that hospitals have different service capacities and should not be "marked down" because they do not admit patients that should be seen in larger facilities that may be more distant. This section addresses the issue of market share for the subset of patients covered by Medicare.

To define the role played by RPDs and MAFs in providing health care to Medicare beneficiaries in their local communities, we analyzed Medicare inpatient hospital claims incurred from 1990 to 1992. For each of our sample hospitals (RPDs, MAFs, and two comparison groups of hospitals), we defined a market area on the basis of zip codes representing the top 65 percent of Medicare discharges pooled over these three years. We then calculated three main indicators of market share: (1) the RPD, MAF, or comparison hospital share of Medicare discharges in the market, (2) Medicare discharges originating from other rural hospitals, (3) and Medicare discharges from urban hospitals.

1. Average Share of the Market

The RPD share of the local inpatient Medicare market tends to be lower than other similar hospitals in our comparison group. As shown in Table V.8, RPDs in 1992 provided an average of

TABLE V.8

MARKET SHARES OF RPCH GRANTEES AND COMPARISON HOSPITALS

	1990				1992			
	RPCH Grantees (n = 34)	Comparison Hospitals (n = 72)	Difference		RPCH Grantees (n = 34)	Comparison Hospitals (n = 72)	Difference	
			Average	Standardized			Average	Standardized
All Medicare Discharges								
Own Share	36.7 %	41.6 %	-4.9 %	-1.2 %	32.7 %	40.3 %	-7.6 %*	-2.8 %
Other Rural Share	36.5	26.4	10.1 *	4.1	39.7	27.3	12.4 *	4.7
Urban Share	25.5	30.9	-5.4	-2.8	27.5	32.2	-4.7	-1.9
Top 15 DRGs								
Own Share	54.0	58.8	-4.8	0.7	49.7	58.7	-9.0 *	-3.3
Other Rural Share	33.6	24.6	9.0*	2.1	36.7	25.6	11.1 *	3.1
Urban Share	12.3	16.0	-3.7	-0.7	13.6	15.5	-1.9	0.3

NOTE: Standardized differences were based on the following statistical models: $Y = aX + bZ + cK$ where Y is either own share, other rural share or urban share; X is a dummy variable indicating RPCH or comparison hospital; Z is the average number of discharges; K is a set of variables representing distances to other hospitals and health centers; a is a parameter representing the standardized difference in share between MAFs and comparisons; b is a parameter representing the effect size (discharges) on market share; and c is a parameter representing the effect of distance on market share.

*Statistically significant difference at the five percent level.

33 percent of the inpatient care to Medicare beneficiaries in their market areas, compared with an average of 40 percent for a comparison group of rural hospitals. The difference in market share between the two groups is also reflected in the relative market share of other rural hospitals competing with the RPDHs and comparison hospitals in their markets. That is, other rural hospitals have a larger share of the RPDH market than they do of the comparison-hospital market. The presence of urban hospitals in these markets appears more similar. Moreover, market share for the RPDHs appears to have declined from 1990 to 1992, dropping from a 37 percent share in 1990. A similar decline also occurs for the share of 15 core DRG. In contrast, the market share for the comparison hospitals fell hardly at all. RPDH grantees saw a smaller share and lost share faster than their similar neighbors.

The MAF hospitals fared even more poorly. Table V.9 calculates average market shares for four MAFs that converted after 1992. (This allows a comparison similar to that for the RPDHs of the trend in market share prior to becoming a limited service hospital.) In 1990, the four MAFs (perhaps because of their greater isolation) saw a larger share of their local markets--an average of 66 percent of the top 15 DRGs. Indeed, this share was no different than that of the comparison hospitals. Only two years later, while the market share for the 12 comparison hospitals remained steady, the four future MAFs suffered substantial declines, leaving them 17 percentage points behind similar comparison hospitals. As a group, they admitted in 1992 barely more than a quarter of the hospitalized Medicare patients in their service area. Similar to the RPDH grantees, they had only a 50 percent share of the 15 core DRGs.

2. Characteristics Affecting Market Share

Despite attempts to select a group of comparison hospitals similar to RPDH hospitals, we found some differences between the two groups in terms of characteristics that potentially affect market share. For example, as shown in Appendix A, RPDHs are smaller than hospitals in the comparison group and tend to be more isolated. RPDHs are located an average of 62 miles from a major central

TABLE V.9

MARKET SHARES OF MAF HOSPITALS AND COMPARISON HOSPITALS

	1990				1992			
	MAF Grantees (n = 4)	Comparison Hospitals (n = 12)	Difference		MAF Grantees (n = 4)	Comparison Hospitals (n = 12)	Difference	
			Average	Standardized ^a			Average	Standardized ^a
All Medicare Discharges								
Own Share	41.6 %	46.3 %	-4.7 %	-5.3 %	26.4 %	46.1 %	-19.7 %	-28.6 %*
Other Rural Hospital Share	30.5	28.1	2.4	16.0	43.5	30.5	13.0	25.0
Urban Hospital Share	27.8	25.4	2.4	-10.6	32.2	23.4	8.8	-0.2
Top 15 DRGs								
Own Share	66.2	66.8	-0.6	3.2	51.1	68.2	-17.1 *	-24.6
Other Rural Hospital Share	18.3	19.7	-1.4	7.5	38.3	20.7	17.6	14.2
Urban Hospital Share	15.5	13.4	2.1	-10.7	19.3	11.0	8.3	6.1

^aStandardized differences were based on the following regression model: $Y = aX + bZ + cK$ where Y is either own share, other rural share or urban share; X is a dummy variable indicating whether a hospital is a MAF or a comparison hospital; Z is the average number of discharges; K is a set of variables representing distances to other hospitals and health centers; a is a parameter representing the standardized difference in share between MAFs and comparisons; b is a parameter representing the effect size (discharges) on market share; and c is a parameter representing the effect of distance on market share.

*Statistically significant difference at the five percent level.

area that provides rural health care, as compared with 75 miles for the comparison group. The nearest hospital is 20 miles from the average RPCH and 23 miles from the average comparison hospital.

When we standardized our data to account for these differences, RPCHs continued to have a lower share of the market, but the magnitude of differences in market share is reduced (to about 3 percent), and the differences are not statistically significant. These results appear to be consistent with the hypothesis that increased proximity to other hospitals and smaller facility size would tend to decrease a hospital's expected market share.

Results from our analysis of these characteristics for MAFs were more difficult to interpret. MAFs tend to be closer than comparison hospitals to the nearest other hospital but farther away from a major rural health center. MAFs are also substantially smaller than their comparison group counterparts. After size and isolation factors are controlled for, standardized market share differences between MAFs and comparison hospitals are still statistically significant. Standardized differences between other rural and urban hospital shares in MAF and comparison markets are substantially different from the unadjusted differences, but they are not statistically significant.

3. Market Share Differences by State

We also analyzed market share differences by state for RPCHs and the comparison hospitals. Table V.10 shows market share for six of the seven states in the EACH-RPCH program.⁹ For five of these six states, RPCHs have lower shares than the comparison hospitals in those states. The one exception is South Dakota. Market shares for RPCHs range from an average of about 20 percent for the less isolated hospitals in North Carolina to about 42 percent for the more remote hospitals in South Dakota.

⁹New York was excluded because of the small number of the hospitals.

TABLE V.10
HOSPITAL MARKET SHARE BY STATE, 1992

State	RPCH Hospitals ^a	Comparison Hospitals
West Virginia	29.8 %	37.1 %
North Carolina	19.5	32.6
South Dakota	41.7	33.3
Kansas	32.2	42.4
Colorado	38.7	47.9
California	37.6	41.2
Montana	19.4	46.1

^aMAFs in Montana.

4. Market Share of Potential Limited Service Hospitals

This section addresses the issue of targeting. Are the MAF programs working with hospitals that are used by their communities or simply "propping up" redundant facilities that no longer play an important function in inpatient care? For EACH-RPCH grantees as a group, this does not appear to be the case. They are not unusual in the sense of being used by a disproportionate share of their communities' Medicare inpatients. But they appear not as notably marginal facilities, particularly when systematic differences in their size and isolation are taken into account. The small number of MAF facilities makes generalization difficult, but clearly the more recently converting hospitals have been rapidly declining as key service points. Their market shares are significantly below that of their comparison hospitals, but actually similar to the profile of RPCH grantees.

E. SUMMARY AND CONCLUSIONS

Unlike the MAF demonstration, the EACH-RPCH program does not have a formally stated objective to improve access to care for communities at risk of underservice. We have argued in this chapter that the utility of both limited-service models is greatly increased to the extent that they address access issues common to many small rural communities.

It is unfortunate that much of the evidence on access is premature, since it relates to the initial targeting of RPCH hospitals for grants rather than operating converted hospitals. Within these limits, the results of the analysis suggest that the very small participating hospitals indeed serve a limited range of patients, have in the past served a fraction of their appropriate market (e.g., their share of the 15 DRGs most common in very small hospitals), and, with the limited stays required by conversion, will most likely serve an even smaller share in the future.

The experience of most of the facilities that have been the first to take advantage of MAF or RPCH status suggests that their primary impact on communities' access to care may be quite different from the common concern with emergency and acute care. For example, in Montana the market shares of the original very small MAFs appear to be strikingly low. Circle's share of Medicare's top

15 DRGs dropped from 36 percent before it converted in 1990 to 30 percent in 1992. According to HCFA's claim files, Terry's share in 1992 is only 6 percent (a very low figure that may be an artifact of the problem of defining service areas on the basis of small discharge volumes.) These figures again raise the question of how inpatient operations should be viewed. The unique aspects of limited service hospitals is almost exclusively defined in terms of inpatient operations. Yet for some of the earliest pioneers, inpatient stays play a marginal role, a reality reflected in low market share statistics.

While respondents in Montana have pointed to dramatic instances of critical roles played in health emergencies, the primary function of many of these hospitals appears to be as centers of long-term care for an aging population. Long-term care is not an explicit goal of either initiative, yet we have noted that often the most dramatic changes in the facilities have been significant improvements in the quality of care for the frail elderly. In addition to capital investment in new structures, the initial group of facilities have also added home health and non-emergency transportation. In the longer term, it is likely that the greater financial security promised by the two models can anchor a wide range of additional services.

Likewise, a more stable facility has the potential to improve recruitment and retention of physicians and other key personnel. We do not yet have, however, the experience to gauge the ability of the limited service model to succeed in these areas. Any future assessment of impact on access will, however, need to recall that facilities differ in how they define their core missions and therefore in how their impact on access must be viewed.

RPCH certification surveys and the outcome of those visits. The facilities written plans of correction (Form HCFA-2567(10-84)) for each certified RPCH were analyzed.

A. QUALITY ISSUES AND EXPECTATIONS

Given that the EACH program is still in the early stages, it may appear premature to investigate care that has just begun to be offered. However, an evaluation of the QA system appears to be worthwhile because the issues connected with quality of care are significant, and much effort has been devoted to developing QA standards and procedures. This section reviews the issues associated with quality of care and what is expected from RPCHs in terms of quality of care.

1. Quality Issues for the EACH-RPCH Program

While preserving access to hospital-based services is the program's paramount objective, policymakers and providers are sensitive to the potential for delivering a lower standard of care. This concern is directly reflected in many of the comments HCFA received on the interim program regulations (*Federal Register*, May 26, 1993, p. 30630). The following questions about quality were raised:

- Do the constraints on length of stay and number of beds effectively and appropriately limit the type and severity of case treated in RPCHs?
- Won't a 72-hour-stay limit result in arbitrary and needless transfers that themselves would be harmful to the patient?
- What level of obstetric services should be allowed in RPCHs?
- What standards and capabilities are reasonable for clinical laboratories in RPCHs; should they be subject to the Clinical Laboratories Improvement Act (CLIA)?
- Should small RPCHs be held to the same standards for QA programs as large urban hospitals?
- What responsibility do EACHs have for the quality of care, particularly if they are required to give staff privileges to RPCH physicians? Should they be responsible for on site-inspections and other quality control measures?

- Shouldn't the required equipment and training levels for emergency room staff be more stringently specified? What supplies of blood and blood products should be available at an RPCH?
- How do we prevent trained ambulance crews from dropping off patients at a RPCH staffed by personnel with a lower level of training or experience?
- Is the 30-minute response time when the emergency room is closed a reasonable standard? Can a nurse make adequate clinical decisions in such circumstances?

Many of these issues have been debated at the state level as well as among physicians and administrators in participating hospitals. In drawing up the program regulations, HCFA has taken the general position that "any facility that furnishes health care incurs the responsibility to meet standards designed to assure the quality of care. Compliance is no less important in a small facility than in one having hundreds of beds" (*Federal Register*, May 26, 1993, p. 30652). In addition, Congress has recently prohibited all general anesthesia in RPCHs, and HCFA has clarified standards and expectations in the Final Rule and subsequent interpretive guidelines for certification site visits. Despite these efforts to define and ensure quality, basic questions as to the nature of services remain unanswered. As a result, the 1994 congressional amendments to the program require the General Accounting Office to investigate whether RPCHs "are providing inpatient care beyond their capabilities or have limited the ability of such hospitals to provide needed services" (House Resolution 5252, October 1994).

2. Quality Assurance in Small Hospitals

In principle, the best way to investigate quality of care is through structured record reviews so that the outcomes or process of care can be assessed at RPCHs. Because of the brief operating experience of RPCHs and the low number of cases in any one facility,² we focus on procedures in the first RPCHs.

²Luft and Hunt (1986) have suggested combining several years of data from a single institution or pooling similar cases across institutions to overcome the problems of low case volume. This approach may be useful for any future studies.

Many of the quality issues facing RPDHs are hardly unique to limited service hospitals. Small and rural hospitals frequently have problems implementing QA programs. Because RPDHs, by definition, are very small and rural acute care facilities, they confront many of the same problems that other rural hospitals do in designing and operating their QA programs. They are likely to face (1) insufficient general knowledge within the facility about QA principles, (2) insufficient financial and human resources to implement QA programs, (3) physicians who are reluctant to participate in QA programs because of perceived demands on time, apprehensive about participating in peer review, or both, and (4) insufficient volume of patient services from which to draw conclusions about patient outcomes (Wingert, Christianson, and Moscovice 1991).

RPDHs may address some of these problems by participating in the EACH-RPDH program. For example, they may get advice from their EACHs on improving their QA programs. QA staff resources may be made directly available to RPDHs by their EACHs. By virtue of cost-based reimbursement for Medicare patients, RPDHs may be better able than other small, rural hospitals to finance their QA programming. Within rural health networks, RPDH and EACH medical staff may be merged, creating numerous opportunities for RPDHs to experiment with new models of peer review.

3. Quality Assurance Expectations for RPDHs

The Medicare conditions of participation for RPDHs (42 CFR, §§ 485.601 through 485.645) outline the fundamental QA expectations for RPDHs. The conditions are the basis for Medicare and Medicaid certification and state licensure. Although many parts of the conditions of participation relate to QA, Section 485.641, "Periodic Evaluation and Quality Assurance Review," specifically sets out the structure and process of RPDH QA programs. Table VI.1 lists the provisions of this section.

RPDHs must conduct periodic utilization and quality reviews, undertake remedial action based on the evaluations, and document the outcomes of such actions. The EACH program legislation and rules are silent on the obligation of EACHs to support RPDH QA programs in their rural health

TABLE VI.1

RPCH QA REQUIREMENTS FOR MEDICARE CERTIFICATION

Periodic Evaluation

- The RPCH carries out or arranges for evaluation of its total program at least once a year. It includes a review of:
 - The utilization of RPCH services, including at least the number of patients served and the volume of services
 - A representative sample of active and closed clinical records
 - RPCH health care policies
- The purpose of the evaluation is to determine whether the utilization of services is appropriate, the established policies followed, and whether any changes are needed

QA

- The RPCH has an effective program through which the quality and appropriateness of diagnosis, treatment, and treatment outcomes are evaluated. The program requires that:
 - All patient care services and other services affecting patient health and safety are evaluated
 - Nosocomial infection and medication therapy are evaluated
 - The quality and appropriateness of the diagnosis and treatment furnished by nurse practitioners, clinical nurse specialists, and physician assistants at the RPCH are evaluated by a member of the RPCH staff who is a doctor of medicine or osteopathy under contract with the RPCH
 - The quality and appropriateness of the diagnosis and treatment furnished by doctors of medicine or osteopathy at the RPCH are evaluated by the PRO for the state in which the RPCH is located
 - The RPCH staff considers the findings of the evaluations, including recommendations of the PRO, and takes corrective action if necessary
 - The RPCH also takes appropriate remedial action to address deficiencies found through the quality assurance program
 - The RPCH documents the outcome of all remedial action
-

networks. However, the conditions of participation allow RPCHs to carry out their QA programs on their own or to arrange with others to do so. The most likely candidate with which a RPCH would arrange QA support is its EACH. Because EACHs receive a number of patients from RPCHs, it is in their interest to improve the quality of services in RPCHs to avoid paying the price for poor quality at a RPCH. For example, suppose a Medicare patient is admitted to a RPCH, develops a nosocomial infection, and is transferred to the EACH for more extensive care. Because of the infection, the patient must stay in the hospital to receive antibiotics intravenously for two days beyond the time required by the primary diagnosis. Because the reimbursement is fixed, the loss to the EACH is equal to the expenses of two days of patient care.

The peer review organization (PRO) for the state in which an RPCH is located is required to evaluate the quality of the diagnosis and effectiveness of treatment furnished by RPCH physicians. Under contract with HCFA, PROs are responsible for determining whether care given to Medicare beneficiaries is medically necessary, reasonable, and provided in the most appropriate setting. Additionally, the PRO is responsible for an overall assessment of the quality of medical care provided to all patients. Using generic screening criteria, the PRO reviews patient charts to assess whether medically recognized standards of quality are being met. This is a review of the practitioner in the facility, not of the facility itself.

B. QUALITY ASSURANCE STRUCTURES

State government and RPCH officials were interviewed to assess whether the resources and mechanisms needed to evaluate the quality of care delivered in RPCHs are in place. State directors of licensure and certification were interviewed to obtain information about surveyor training and the RPCH survey process. The directors were also asked for their opinion on the quality of care at RPCHs. RPCH staff members were interviewed to assess the QA structure, including mechanisms for implementing the program, the level of staffing and supervision, and the level of EACH support for QA programming.

1. Mechanisms for Program Implementation

The involvement of the director of the state licensure and certification office in planning for the EACH-RPCH program seems to have a beneficial effect on (1) attitudes within the office in regard to the program, (2) staff training, and (3) surveyor assignments. The directors of licensure and certification in two of the three states (West Virginia and South Dakota) with certified RPCHs, played an active role in planning for the implementation of the EACH-RPCH program in the state. In these cases, the directors served on an EACH-RPCH advisory committee or an internal department of health EACH-RPCH program management team. He or she could convey to staff the ideas behind the RPCH model and the importance of the model to rural areas of the state. During staff training sessions, both directors stressed the importance of providing the RPCHs with "technical assistance" during the survey visit. The directors offered to review RPCHs off the record before their first survey. In South Dakota, the director of licensure and certification and the state EACH program officer accompanied the surveyors on their first visit. Surveyor training was also more complete in West Virginia and South Dakota. The directors met with the survey staff more than once, and the staff had multiple conference calls with HCFA to learn about the rules. The directors also knew HCFA-HSQB personnel working on the EACH-RPCH program by name.

The initial RPCH surveys in Kansas did not go as well. Here, the director of licensure and certification did not actively participate in implementation planning.³ The training of the surveyors was less thorough, and the RPCHs characterized them as ill-informed and hostile. The administrator of one EACH who was present during a survey complained in a letter to the director of licensure and certification about the surveyor's attitude. Unlike the other states, which dispatch their surveyors from a central location (the state capital), Kansas has decentralized its surveyors. Seven branch

³Kansas engaged in a multi-year planning process, and the director of the licensure and certification was originally a member of the planning committee. Midway during committee deliberations, the director of licensure and planning resigned his position to become the director of the state office of rural health. The licensure and certification position on the committee was not replaced.

offices are located throughout the state. Decentralization may also have had a negative impact on surveyor training and supervision. The director in Kansas, who did not participate in implementation planning, joined a surveyor in only one conference call with HCFA to learn about the rules and interpretive guidelines. Copies of both were sent to the branch offices. The surveyor who participated in the first RPCH survey received no special training. The director said that the department of health had not engaged in "much internal training" because the EACH-RPCH program is very small.

The directors of licensure and certification offices in West Virginia and South Dakota assigned experienced surveyors to conduct the first RPCH licensure and certification survey visits. The directors discussed the program and its rules with the surveyors immediately before the visit, and in one case, the director supervised the survey team in the field. One RPCH administrator said the survey process was "very good," that the surveyors had done their "homework," and that they "sat down and actually brainstormed with us on a couple of things." In contrast, the lead surveyor in Kansas who inspected the RPCHs was not highly experienced. She had not previously surveyed these facilities when they were hospitals and was not extremely familiar with the program rules. Following a review of the survey findings, the HCFA regional office ruled the state "out of compliance" in regard to an interpretation of the rules and overturned one of the cited deficiencies.

All three states that have licensed RPCHs plan to survey them annually, but two states plan to revisit the facilities every six months to verify progress on the RPCH plans of correction.⁴ The facilities vary widely in their capabilities and compliance with the conditions of participation. One RPCH, the only facility accredited by the Joint Commission on the Accreditation of Health Organizations (JCAHO), was cited as having 26 deficiencies, all but 2 of which were for life-safety code and environmental problems. The administrator of the facility suggested that JCAHO surveyors were not as vigorous as state surveyors in inspecting the physical plant. Significant staff turnover (the

⁴Note that hospitals that are accredited by the Joint Commission on Accreditation of Health Organizations are surveyed every three years.

administrator, director of nurses, and QA director/medical records administrator all quit at the same time) and a lack of understanding of the need for and content of policies and procedures was a problem for one facility. Here, the surveyors counseled the EACH to provide the RPCH with more administrative assistance. At the two facilities inspected by the surveyor who received less training, eight deficiencies were cited (six at one facility and two at the other).

Regardless of their internal resources and capabilities, none of the RPCHs has had difficulty complying with the conditions of participation, and none has had difficulty being certified. This is undoubtedly a result of complying with the Medicare conditions of participation for a hospital when it applies for conversion. Because the hospital standards, in most cases, are more stringent than RPCH standards, it is reasonable to assume that a facility that can pass inspection as a hospital should also be able to do so as an RPCH.

2. The Role of Peer Review Organizations

For all hospitals, PROs review samples of patient medical records as well as all the records for all interfacility transfers to assess the quality and appropriateness of admissions and subsequent care. PROs are required to report the findings of their evaluations to RPCHs, and RPCHs are required by the conditions of participation to take appropriate remedial action and document the outcome of the actions. Although representatives of the state PPOs were not interviewed during the evaluation, the fact that PROs did not notify RPCHs of significant quality problems may indicate that none have arisen to date. (None of the RPCHs visit commented on receiving PRO reports that required remedial action.)

Kansas is the only state of the three with certified RPCHs in which the PRO participated in implementation planning. This person sat on the planning committee for over two years and was instrumental in various phases of the planning effort, suggesting modifications to the service limitation and assisting in the design of utilization estimates for financial modeling.

3. RPCH Quality Assurance Structures

a. Quality Assurance Mechanisms

All of the RPCHs certified to date have QA programs. Although the programs vary in strength, even the weakest endured the scrutiny of state surveyors, who made sure that RPCH QA programs were "facility-wide, [covering] all departments and all services provided under contract." The surveyors reviewed the written QA plan, QA committee meeting minutes, and reports produced by the QA director; they also interviewed staff about the QA procedures. This review, conducted before the RPCHs began to treat patients, deals with structural QA issues and ensures that there are systems for monitoring performance and taking remedial action.

As in many small hospitals, peer review is typically the weakest facet of RPCH QA programs. Although RPCHs have not taken advantage of their relationship with EACHs and integrated their peer review systems, RPCHs in Kansas do participate in a limited external peer review program. Before the establishment of the EACH program, Kansas developed a risk management program, creating a structure through which small hospitals could use other hospitals to support QA and risk management functions. Hospitals must report certain incidents to the state, and the related charts are reviewed.

Pooled or joint peer review is complicated by physician attitudes. RPCH physicians feel threatened by having their practice reviewed by "big city" physicians. This fear may be generated by the perception of RPCH providers that their practices either do not meet the standard of care in larger communities or that they are being reviewed by competitors. There are also logistical problems in pooling peer review activities of EACHs and RPCHs. To date, none of the networks shares a data system capable of electronically moving medical records information between facilities. Physically transporting hard copies of records and the confidentiality issues associated with doing so make it difficult to share peer review activities. Despite these problems, some RPCHs are exploring the

possibility of using EACH physicians for peer review. As the EACH program matures, networks may combine peer review programs, but to date there has been little movement in this direction.

b. RPCH Staffing and Supervision

The RPCH rules allow "a doctor of medicine or osteopathy, nurse practitioner, clinical nurse specialist, or physician assistant . . . to furnish patient care services" to RPCH inpatients. The RPCHs certified to date are staffed at levels greater than the minimum regulatory standards of the program. The supervision provided by physicians to nonphysician providers is appropriate and in compliance with state laws in the view of the state surveyors.

All certified RPCHs have at least one full-time physician living in the community, and several also have nurse practitioners or physician assistants on staff. Unlike hospital regulations, the RPCH regulations do not call for a registered nurse to be on duty 24 hours per day, but for "a registered nurse, clinical nurse specialist, or licensed practical nurse [to be] on duty whenever the RPCH has one or more inpatients." All the RPCHs we visited exceed the nurse staffing requirements of the conditions, providing 24-hour coverage. Moreover, because registered nurses do not want to work alone on the night shift for safety reasons, a nurse's aid or licensed practical nurse is also scheduled to work the night shift. So while RPCH nurse staffing regulations are more flexible than hospital regulations, facilities that have converted thus far are not "taking advantage" of this flexibility. Not only do they employ more registered nurses than required, but they also staff at higher levels than warranted by occupancy.

Several of the RPCHs had decreased the level of their staffing in the emergency room (ER) to help reduce costs as part of their conversion. They no longer staff the ER with physicians on site on a 24-hour basis, but have kept their ERs open through the night with nursing staff on site (who generally also care for the inpatients) and a physician, NP, or PA on call. The RPCH rules allow a facility to operate this way as long as there is a "practitioner [physician, NP, or PA] with experience in emergency care on call and immediately available by telephone or radio contact, and available on

site within 30 minutes..." To date, the RPCHs' on-call practitioners live in the RPCH community and thus are much closer than 30 minutes to the site--5 to 10 minutes away. In fact, in at least two of the RPCHs, the physician (or NP or PA) has reportedly always arrived on site before or at the same time as an emergency patient. Thus, none of the current RPCHs are operating near the limits of the RPCH rules; from the perspective of the patient, emergency care has for the most part been provided in the same timeframe as prior to conversion. One RPCH grantee that had not yet converted was attempting to arrange ER coverage by EACH physicians--an arrangement that would come closer to testing the limits of the rules, since EACH physicians are nearly 30 minutes away.

Although the physicians supervise the nonphysician providers, this supervisory relationship is not always close. In some cases, the practitioners compete for patients, but in all cases, the physicians counter-sign inpatient charts and prescriptions as required by state law. They also review nonphysician charts through the RPCH QA program. Some RPCHs are developing clinical management protocols for their nonphysician providers.

c. EACH Involvement in RPCH QA Programming

Most EACHs have played a constructive role in the certified RPCHs' QA program and staff training. For example:

- RPCH QA directors attend meetings as a members of the EACH QA committee.
- EACH QA directors provide RPCHs with QA technical assistance (e.g., in developing policies and procedures, and in incorporating safety and infection control into QA program).
- Selected registered nurses and department heads from EACHs visit RPCHs to become familiar with RPCH staff and capabilities; EACH department heads provide technical assistance as needed.
- EACHs target assistance to specific programs (e.g., CLIA compliance).
- One RPCH and one EACH have integrated their medical staff credentialing processes.

- EACHs assume responsibility for biomedical engineering (safety, calibration, and documentation).
- At least one RPDH and one EACH have begun to discuss merging QA programs.

The EACHs also make themselves available to answer requests for assistance from their RPDHs.

Because the network relationship between the facilities is relatively new and a high level of trust has not yet been established, some RPDHs may be reluctant to have their EACHs become too involved in their daily activities. For example, in one apparently well-functioning network, a RPDH administrator said that EACH managers want monthly meetings with RPDH managers, but that RPDH managers would prefer quarterly meetings.

C. EVALUATING THE PROCESS OF CARE

The process of care is evaluated by reviewing the activities of health care professionals. RPDH staff were interviewed about (1) compliance with RPDH licensure and certification requirements determined during the initial state inspection, (2) policies and practices regarding referrals and transfers, and (3) changes in the process as a function of network participation or RPDH status.

1. Compliance with Certification and Licensure Requirements

All the RPDHs are in compliance with certification and licensure requirements. There is no pattern of deficiencies in the certified RPDHs, and the deficiencies appear to be unique to facilities, not indicative of wider trends. All facilities filed plans of correction specific to the deficiencies.

The types of deficiencies cited during the first six RPDHs' certification inspections are summarized on Table VI.2. Aside from numerous life-safety code and environmental deficiencies in West Virginia, relatively few deficiencies were cited, and those that were, were reviewed with RPDH staff. Of the deficiencies unrelated to life-safety code or environmental violations, four were cited twice in the surveys we reviewed. One was cited three times, and none was cited more than that. Several deficiencies relate to the failure to document events or policies and procedures, which may

TABLE VI.2

DEFICIENCIES CITED DURING THE CERTIFICATION
INSPECTIONS OF THE FIRST SIX RPOCHS

Governing Board and Administration

- No documentation for governing board approval of RPOCH policies or network agreements
- No policy reporting changes in operating officials or persons responsible for medical direction to the state
- No organizational chart to show reporting relationships as evidence of supervision
- No evidence that physicians or nonphysician providers participate in the development of RPOCHs' written policies^a
- No evidence that physicians and nonphysician providers jointly review RPOCH patient records on some regular basis^b
- Inability of facility to provide a list of direct services to be provided by the RPOCH

Medical Staff

- No nonphysician provider practice protocols^a
- Failure of practitioners to date chart entries at the time of signing
- Service privileges granted the physician assistant exceed those requested by the supervising physician
- QA plan does not include review of care delivered by nonphysician assistants
- Failure to insure current state licensure or certification for each physician granted staff privileges
- Medical staff appointments not approved by the governing board

TABLE VI.2 (continued)

Emergency Room

- Inability to ensure that the RPCH is organized to meet the emergency needs of its inpatients and outpatients^a
- No policy requiring a practitioner to be available by telephone and to the RPCH within 30 minutes
- Required equipment, supplies, and medications not readily available for treating emergency cases

Other

- No capacity to conduct pinworm testing
 - Failure to establish a system to communicate and share patient data with the EACH
 - Failure to ensure that patients receive therapeutic diets according to practitioners' written orders
 - Patients are not always discharged within 72 hours of admission
 - Failure to ensure that drugs are stored and dispensed according to professional standards
 - Record retention policies do not comply with state or federal requirements
-

^aDeficiency was cited at three facilities.

^bDeficiency was cited at two facilities.

3. Changes in the Process of Care as a Function of Network Participation or RPDH Certification

Virtually all certified RPDHs have changed their operations as a result of being affiliated with a network or certified. These changes have the potential to improve the overall quality of services provided at RPDHs. The following are some of the changes that have been made:

- Introduction of interactive video that links a RPDH, an EACH, and a medical school (the system is used for education and patient care, i.e., patient evaluations)
- Development of a high-risk obstetrics protocol to screen out inappropriate admissions to the RPDH
- Elimination of inpatient surgery (previous service was seldom used) and obstetrics
- Voluntary referrals of certain types of patients (e.g., cardiac cases) directly to the EACH
- Development of swing beds and distinct part skilled nursing facility (SNF) beds to more appropriately care for patients in the community
- Closing of an intensive care unit that had encouraged practitioners to retain patients when it may have been inappropriate to do so
- Development of specialty clinics with support of EACH medical staff
- Broadening of advanced life-support training to hospital personnel
- Purchase of new equipment (e.g., chemistry analyzer) in some cases from the EACH or with the EACH's group purchasing discounts

These changes may result in earlier diagnosis and treatment, and in the delivery of care in more medically appropriate settings.

D. CONCLUSIONS ON QA IN THE EACH-RPDH PROGRAM

Our evaluation of QA procedures at the RPDHs reveals a great deal about the relationship between quality of care and the EACH-RPDH program. No significant quality of care problems were discovered in the six certified RPDHs. Moreover, the QA systems of the facilities will likely be strengthened by their continued association with EACHs. Peer review and medical staff credentialing are the two areas in greatest need of support from EACHs. A few networks have begun to integrate

their peer review and credentialing programs, and those that have not should be encouraged to do so. The EACHs should continue to support their RPDs by providing general quality improvement training and specific training in QA data collection and analysis.

This assessment is not complete in that we have not reviewed medical records, a process that would be greatly complicated by the need to develop comparable data for similar small rural hospitals. As noted in the following chapter on Montana's MAF demonstration, it is likely that the external support and attention afforded these very small and often medically isolated hospitals will reduce the potential for quality problems. This possibility is strongly supported by the fact that over half of the RPD grantees believe that their quality of care improved as a result of the program.

Despite the limits of this evaluation, we can draw some solid conclusions about the following:

- The impact of conversion on QA programs as measured by post conversion changes
- The importance of EACH support in delivering high-quality care
- The effect of conversion on the complexity of care at the RPD caseload

1. Impact of Conversion on Quality Assurance

Most of the RPDs reported that their QA programs changed very little as a result of conversion. In some cases, nonphysician providers were added to the medical staff, resulting in modified QA plans. Some plans include monitoring of the transfer process. Despite these and other marginal changes, it is likely that the QA plans will continue to evolve as (1) the facilities gain more operating experience, (2) the RPDs feel less restrained in getting technical assistance from their EACHs, and (3) state surveyors begin to stress the process and outcome of care in their annual inspections.

2. Significance of EACHs in Terms of RPD Quality of Care

Most RPDs appear to have benefited from their association with EACHs. Several RPDs have begun to avail themselves of EACH QA expertise or to consider integrating QA/peer review

programming. However, the full benefit of the EACH-RPCH network relative to quality improvement has not yet been realized. Peer review and medical staff credentialing are the two areas most in need of improvement.

3. Effect of Conversion on Complexity of Care

Most certified RPCHs have not reported major changes in services. Some have eliminated inpatient surgery and obstetrics, but these services were not used frequently. RPCHs also reported that they treat much the same mix of patients since conversion. (We did not compare pre-conversion and post-conversion admitting diagnoses.) The average length of stay before conversion was approximately three days. Although most RPCHs comply with the length-of-stay limitation, they may transfer patients to swing beds at the end of 72 hours. Because they can manage the 72-hour limit, it is likely that few have RPCHs have made substantial changes in their admitting behavior. RPCHs typically treat short-term, low-intensity cases. The relative intensity of care delivered in RPCH is markedly below average as measured by their Medical case mix index. A case-mix index of 0.7868 was calculated for a sample of patients discharged from RPCHs during April 1994, compared to 1.0 for the average case.⁵

E. PRO REVIEW IN THE MAF DEMONSTRATION

Hospitals participating in Montana's demonstration are subject to the same frequency of site visits for licensure and Medicare certification as RPCHs are. The survey standards and interpretive guidelines for QA standards also closely resemble those for RPCHs. What is different for MAFs is the requirement that every admission be screened by the relevant PRO. This is much tighter oversight than under the EACH-RPCH program, in which the PROs only review transfer cases.

⁵DRG weights, which combine measures of normative resource consumption and length of stay, may be viewed as a proxy for intensity of service. The weights have been normalized, so the average case has a relative value of 1.0.

The policy issue for the development of limited-service hospitals is whether this level of screening is a necessary and effective tool. If it is, what are the challenges involved in implementing such a screen? This evaluation team has not had the resources to conduct medical record reviews; the observations in this section are based on interviews with the chief of the Montana-Wyoming Foundation for Medical Care (the PRO) and with medical personnel in three MAFs.

1. Review Process

The local PRO has a contract from HCFA to review all MAF admissions. Its first step in implementing this assignment was to develop in October 1993 a new Memoranda of Agreement to be signed by all MAFs. Unlike the EACH program, the Montana-Wyoming Foundation conducts three types of reviews:

- **Preadmission Review.** All MAF cases are reviewed at the time of admission in order to verify that the admission is medically necessary and appropriate. This is conducted by phone or fax and initiated by each facility. For weekend and evening admissions, these reviews must be delayed until the first business day.
- **Continued Stay Review.** Every case is reviewed between the 48th and 72nd hour of stay to verify appropriate discharge or transfer plans. These reviews are also conducted over the phone lines. The purpose of this review is to answer such questions as: Is the patient progressing toward discharge? Is there adequate discharge planning?
- **Retrospective Review.** The PRO may conduct postpayment reviews on a sample of all discharges. These reviews are no different from those for all hospitals, have not been called for in the last two years, and are not a major feature of the MAF program.

This structure of reviews is not confined to Medicare patients. The PRO has a separate contract from Blue Shield to cover their few cases. The PRO also has a separate agreement with each facility whereby the MAF pays for review of Medicaid cases (at a cost of under \$20).

Development of review criteria turned out to be a straightforward adaptation of existing procedures. The process of developing preadmission reviews was not onerous, since the PRO was already conducting such reviews for Medicare and Medicaid cataract surgery cases. The actual review

criteria were drawn from a commercial case management program that has standards for severity of illness and intensity of service.

2. Implementation of Preadmission Review

The beginning of review process was shaky, when the PRO denied many MAF admissions because they were deemed potentially inappropriate for a limited-service setting. (For example, cases with a general diagnosis of abdominal pain were denied admission because they could conceivably require surgery that was not offered at the MAF). The issue for the PRO was the appropriate standard of care. For example, did the MAF have monitoring equipment available for undifferentiated chest pain? From the reviewers' perspective this was an issue related to equipment, not provider competency.

The physician assistant (PA) at Circle is reported to have led the way to a successful resolution of the reviewer's initial concerns. She impressed and educated the PRO's physicians, and in a successful meeting between the facility and PRO personnel, expectations were harmonized. Since then, the PRO director has not reported any concerns about the quality of care.

The PRO does not currently view its role as screening for quality or making decision on whether the case should be in a larger facility. The question asked is the same as that in retrospective reviews of any hospital: Is this a medically necessary admission? (To meet the standard, the case must meet tests of one indicator of acute severity of illness and two criteria for needed intensity of service by body system.)

There is reportedly still an issue (more conceptual than operational) about the application of standards for appropriate care. The PRO administrator still feels that the review process should concern matching patient needs and facility resources. This is clearly a much more complex process, and when asked whether this matching process might conceivably involve different screening criteria for different facilities depending on their service capacity, the PRO director answered in the negative.

3. Implementation of Continued Stay Review

A review of all cases after 48 hours was introduced into the MAF model out of concern that the 96-hour limit might lead to early discharges without the necessary planning. The continued stay review is intended to ensure that the hospital makes plans for transfer or discharge to an appropriate setting.

The PRO administrator believes that these continued stay reviews are a much more important and useful tool than the preadmission checks--so much so that they should be applied to all small, rural hospitals. This assessment is partly a result of the ineffectiveness of the preadmission reviews as a tool for quality assurance. In practice, many MAF patients essentially complete their stays before the PRO is open for business and notification. She also feels that the continued stay is more clinically meaningful--the one chance the PRO has to see how the patient is doing.

It is noteworthy, however, that this assessment is not shared by MAF personnel. Among physicians and PAs interviewed, none were even aware that such a review existed. The process is handled by nurses who fax or make available the proper documentation.

4. Results and Conclusions

Respondents, particularly the PRO director, are very positive about the quality of inpatient care in MAFs. They reported very low problem rates identified in reviews, and few questioned admissions. Indeed, the PRO believes that because of all the intensive review, it is likely that MAF facilities have lower problem rates than other small, rural hospitals in the region.

If anything, the PRO director believes there have been too few admissions. For example, one of the new PAs at Ekalaka was thought to have been fairly conservative and referred cases to another hospital that could have been appropriately admitted. In general, the self-screening of admissions by medical personnel have created few questionable admissions. Only 10 percent of patients are transferred--very few reach the 96-hour limit. It was reported that the swing beds at Ekalaka, Circle, and Culbertson have been used appropriately.

Given the limited focus and positive results, the PRO believes that the 100 percent preadmission review is no longer needed or useful. The suggestion was made that sampling admissions for review would free up resources to apply the same level of review to all rural hospitals. In general, the MAF requirements are at variance with the entire field of quality assurance, which is moving away from individual record review to the analysis of patterns of practice.

In sum, the assessments of the quality of MAFs are more positive about the care received than about the QA process followed by the PROs. There is no suggestion of significant deficiencies. More than one respondent sees MAF standards of care as better than in other small hospitals, and the PRO has concluded that the limited service facilities have demonstrated an appropriate willingness to send difficult cases on to full-service hospitals.

However, it is difficult to avoid concluding that (1) the intensive review will become expensive as the program expands to include larger facilities, and (2) the process appears to avoid key quality concerns. The question of appropriateness of the site of care, which was initially addressed and is now avoided, can easily become contentious as new physicians and hospitals join the program. Expansion of the PRO review requirement to other states should wait until the twin issues of purpose and strategy raised by the Montana experience are addressed.

Finally, the innovative aspects of Montana's QA provisions apply to only a small fraction of MAF operations. Small and isolated nursing home units are often characterized by numerous deficiencies, and there is no review process for the quality of ambulatory care--neither of which are the specific responsibility of the demonstration. In this sense, both the EACH-RPCH and MAF models fracture what, in operation, are unified clinical entities.

VII. FINANCIAL IMPACT

A principle objective of the EACH-RPCH program is to strengthen the financial position of small hospitals serving small rural communities. For many such facilities, a declining population base, coupled with increased competition from larger regional centers and change in delivery of services, has resulted in low inpatient occupancy rates and limited demand for ambulatory services, which generate insufficient revenue to cover their fixed costs. The often stagnant economic base makes the continued high level of local tax-financed subsidies unsustainable. The EACH-RPCH program is designed to address this syndrome through a combination of improved Medicare reimbursement, cost reductions permitted by relaxed regulatory standards, restructured local health systems encouraged by the development of mutually supportive networks, and increased clinical and technical support from EACH partners, who are also granted improved Medicare reimbursement. This chapter investigates the evidence on how well this strategy is working or, more accurately, is likely to work. Much of the analysis is based on simulation analyses, since actual operating experience to date is strictly limited.

We address four aspects of financial impact:

- How much will EACHs benefit from being designated as sole community hospitals (SCHs) for purposes of Medicare reimbursement?
- What is the likely effect of RPCH conversion on financial status, and what factors influence the outcome?
- How does the actual experience of MAFs compare with the simulated impact on RPCHs?
- What is the likely cost to the Medicare program of a fully operational EACH-RPCH network?

The evidence suggests that the program is *unlikely* to appreciably improve the financial status of many small hospitals, particularly those that must significantly downsize. As a result, it will likely

attract a subset of facilities with structures that are already compatible with the program's service limitations. The potential for substantial additional payments to some EACHs will result in additional Medicare program expenditures per network. However, these conclusions are based on projections, not actual experience. Moreover, they do not take into account the impact of possible local structural changes encouraged by the program.

A. FINANCIAL IMPACT ON EACH HOSPITALS

Under the Medicare prospective payment system (PPS), hospitals participating as EACHs are also designated as SCHs for the purpose of Medicare payment. SCHs, and therefore EACHs, are accorded a number of financial protections for costs incurred while providing care to Medicare patients. These benefits include cost-based payments for operating and capital costs, as well as payment adjustments for decreases in patient volume, and they are intended to protect high-cost hospitals from financial losses under Medicare's PPS. Low-cost SCHs, on the other hand, can continue to receive prospective, rather than cost-based, payments. An important policy question connected with the financial impact of the EACH program concerns the number of hospitals linked to a converting RPCH that will receive additional Medicare payments and the extent to which their revenues will increase as a result. The answer to this question depends on (1) the number of EACHs that are not already designated as SCHs and (2) the number of non-SCH hospitals that have historically high costs.

Since we lack sufficient data on actual EACH payments to date, the impact assessment is based on simulated of Medicare payments. This simulation identifies high-cost hospitals among EACH grantees that would receive additional Medicare payments in FY 1994 and estimates the difference in aggregate payments that would have resulted for these hospitals had they participated as EACHs during the year. The simulation was conducted by applying FY 1994 Medicare payment rules and

rates to FY 1992 hospital data; it assumes no behavioral or structural changes in any of the hospitals during the simulation period.¹

The results of this simulation exercise illustrate the following points:

- Average Medicare payment increases for hospitals participating as EACHs in the EACH program are substantial.
- Payment increases for some hospitals with historically high costs are quite dramatic, exceeding 20 percent of current Medicare payments in some cases. Low-cost hospitals and those already receiving SCH-based payments are not affected by EACH status.
- Payment increases are based on historical costs; therefore, hospitals with similar cost structures may be treated differently under EACH program payment rules.
- The extent of payment increases are very sensitive to differences in historical costs. Small percentage differences in the cost per case can lead to substantial differences in the relative advantage of becoming an EACH.
- Estimates of total Medicare payments under the EACH program will be difficult to calculate because total payments depend on whether specific hospitals join certified networks.

1. Medicare Payment Policies Affecting EACH Hospitals

Medicare offers different reimbursement measures for SCH operating and capital costs. Most hospitals find the operating cost provisions most beneficial and the capital cost regulations the most complex. In general, the ability to benefit depends upon current and historic costs relative to present PPS payments.

a. Reimbursement for Operating Costs

Since April 1, 1990, hospitals designated SCHs have received the highest of three operating cost payment rates (ProPAC 1991):

¹At the time of the simulation, FY 1992 cost data were the most recent. Other base-year costs were used where appropriate. All cost data were updated to FY 1994 to allow for appropriate comparisons and payment simulations. Updates were performed using update factors published by HCFA in the *Federal Register* and estimated case-mix adjustments for FY 1994.

- A rate based on FY 1982 Medicare operating cost per case, updated to the current year
- A rate based on FY 1987 Medicare operating cost per case, updated to the current year
- The standard federal PPS rate

EACH hospitals with updated 1982 or 1987 costs per case (hospital-specific costs) that are higher than the federal PPS rate will receive an increase in aggregate Medicare payments. Payments for EACH hospitals with 1982 and 1987 costs per case below the PPS rate, on the other hand, would not change because they continue to receive the standard PPS rate. In addition, payments for hospitals that have already been designated SCHs would not change. Calculating these three rates involves a number of adjustments, such as ones for case-mix and Medicare outlier payments, to ensure that a proper comparison is made (Appendix C).

b. Reimbursement for Capital Costs

For capital costs, SCHs are granted specific protections for high capital costs not available to most hospitals. Before reviewing these protections, it is useful to review current capital cost payment methodology. Originally under PPS, capital costs were reimbursed on a "pass through" basis. These expenses were complex and varied so unpredictably among facilities that hospitals were separately paid a discounted proportion (approximately 85 percent) of what they reported for their Medicare patients' share of allowable capital costs. Since FY 1992, these capital cost reimbursements are gradually being shifted to a prospective add-on to DRG payments. During a 10-year transition to fully prospective capital payments, Medicare has instituted protections for hospitals with high capital costs, particularly for recent construction that was financed in expectation that the pass-through payments would continue.²

²Hospitals' capital spending varies over time and the transition is intended to protect hospitals on the high end of their capital investment cycles due to past investment decisions.

During the transition period, capital payments depend upon a comparison of each hospital's cost per case and a national rate. If hospital-specific costs are below the national rate, the facility is paid a "fully prospective" blended rate which is a weighted average of federal and hospital specific capital rates. An estimated 75 percent of all rural hospitals with 100 to 150 beds in 1992 were paid on the basis of this "full prospective" rate (HCFA 1992).

High cost hospitals with capital costs above the national rate are paid under a "hold-harmless" method which distinguishes between "old" and "new" capital. Hospitals are reimbursed for 85 percent of their old capital commitments--generally those made before December 31, 1990. The more recent capital costs of high-cost hospitals are reimbursed at the national prospective rate.³ Finally, during the transition, Medicare guarantees a floor for the total of all capital costs. Most hospitals are entitled to receive capital payments that represent at least 70 percent of their cumulative Medicare capital costs since 1990.

By being paid as SCHs, EACHs will enjoy additional protections for high capital costs during the transition to a fully prospective capital payments. First, for "old" capital, SCHs are reimbursed for 100 percent (rather than 85 percent) of these costs. There are, however, no SCH payment adjustments for low capital costs. Second, their guaranteed floor payments are increased from 70 to 90 percent of cumulative capital costs (U.S. Congress 1993).

2. Simulation Methods

To calculate increases in Medicare operating payments, we calculated baseline payments (assuming no EACH program) and compared them with simulated payments they would receive based on EACH program payment rules. (Appendix C includes a detailed discussion of methods and assumptions of our simulation). For non-SCH hospitals in our sample, baseline payments were

³If total per-case capital payments to "hold-harmless" hospitals fall below what they would receive under payments based on 100 percent of the national prospectives rate, they are paid the national rate for the remainder of the transition. Approximately seven percent of small rural hospitals were paid on this basis in 1992.

calculated using the estimated applicable FY 1994 PPS rates for hospitals paid under PPS. The rates were adjusted for appropriate area wage differences, disproportionate share, indirect medical education, and outlier costs. For hospitals designated as SCHs prior to the EACH program, the baseline payments were calculated according to the SCH payment rules, that is, the highest of the PPS rate, the 1982 cost per case, and the 1987 cost per case. Data used for all calculations were derived from the FY 1994 Payment Impact File and the *Federal Register* (September 1, 1993).

We then simulated payments under the EACH program--applying SCH payment rules to all hospitals--and compared baseline payments to EACH program payments. Three basic outcomes are possible under these simulations:

- Hospitals already designated as SCHs in the baseline simulation continue to receive SCH operating payments under EACH simulation. No payment changes occur for these hospitals.
- Standard PPS hospitals with updated costs per case in 1982 and 1987 that are *less* than the PPS rate continue to receive operating payments under the PPS rate. No payment changes occur for these hospitals.
- Standard PPS hospitals with updated costs per case in 1982 or 1987 that are *more* than the PPS rate will receive operating payments based on the higher of the updated 1982 or 1987 costs. Payments increase for these hospitals.

We used a similar method to calculate the estimated change in Medicare capital payment. Under a baseline simulation, hospitals already designated SCHs were paid according to SCH capital payment rules. For other hospitals, baseline payments were simulated on the basis of standard PPS payment rules under the transition to a fully prospective system. We then simulated payments under the EACH program by applying SCH capital payment rules to all hospitals and comparing them to the baseline payments. Several capital payment outcomes are possible under these simulations:

- Hospitals already designated as SCHs in the baseline simulation continue to receive SCH capital payments under EACH simulation. No payment changes occur for these hospitals.

- Medicare payments do not change for standard PPS hospitals with low capital costs when SCH payment rules are applied under the EACH simulation.
- Medicare payments increase for standard PPS hospitals under the hold-harmless transition method when SCH payment rules are applied. Payments for these hospitals increase from 85 to 100 percent of old capital costs.
- Medicare payments increase for all standard PPS hospitals (whether hold-harmless or fully prospective) under the EACH simulation if current capital payments fall below 90 percent of Medicare capital costs. Under SCH payment rules, Medicare capital payments must be at least 90 percent of capital costs.

3. Simulation Results

Our sample of hospitals in the simulation consists of 32 EACHs or EACH grantees, 13 of which are already designated as SCHs. These hospitals were selected and identified from our EACH grantee monitoring files. At least one hospital is represented from each of the program states: California (3), Colorado (6), Kansas (8), New York (1), North Carolina (7), South Dakota (4), and West Virginia (3). (For further description of these hospitals, see Chapter III.)

As shown in Table VII.1, the average annual Medicare payment to our sample hospitals under the current system (baseline simulation) is a little over \$7,451,000. Under the EACH program simulation, the payment increase for the 32 EACHs in our sample in FY 1994 is approximately \$336,000, or a 4.5 percent increase over total current payments. Excluding EACHs that were designated SCHs prior to the EACH program, estimated average payment increases are more than \$566,000. Of the remaining 19 hospitals (see Figure VII.1), 11 received increased Medicare payments. Individual gains for these hospitals ranged widely from about \$26,000 to a little over \$3 million. The other 8 hospitals experienced no change in payment.

According to the results in Table VII.1, nearly all payment increases (99 percent) are the result of increases covering Medicare operating costs as opposed to capital costs. The average payment increases are large because SCH payment rules are designed to ensure that no designated hospital experiences payment decreases by switching to SCH status. As a result, payments increase for 11 "winning" hospitals. The remaining hospitals never lose; they are simply paid under standard PPS and

FIGURE VII.1

DISTRIBUTION OF ESTIMATED GAINS IN MEDICARE
REIMBURSEMENT FOR 19 NON-SCH GRANTEES

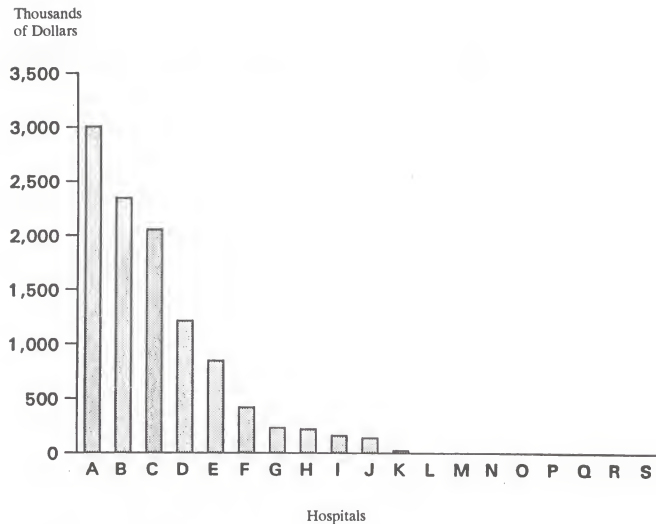


TABLE VII.1
SIMULATED MEDICARE PAYMENT EFFECTS FOR EACHS (FY 1994)

	Operating Payments			Capital Payments			Total Payments			Percent Change
	Current	With EACH Conversion	Difference	Current	With EACH Conversion	Difference	Current	With EACH Conversion	Difference	
Average for all EACHs (n = 32)	\$6,844,004	\$7,177,473	\$333,469	\$607,780	\$610,718	\$2,937	\$7,451,784	\$7,788,191	\$336,407	4.5
Average for non-SCH EACHs (n = 19):	8,246,564	8,808,186	561,633	711,373	716,320	4,947	8,957,927	9,524,507	566,580	6.3
Hospital A	9,797,865	10,031,356	233,491	1,041,042	1,041,042	0	10,838,907	11,072,398	233,491	2.2
Hospital B	2,557,629	2,557,629	0	132,407	132,407	0	2,690,036	2,690,036	0	0.0
Hospital C	19,289,352	19,510,185	220,833	1,198,016	1,198,016	0	20,487,368	20,708,201	220,833	1.1
Hospital D	10,527,814	10,527,814	0	658,317	658,317	0	11,186,131	11,186,131	0	0.0
Hospital E ^a	7,876,329	10,880,668	3,004,339	590,724	590,724	0	8,467,053	11,471,392	3,004,339	35.5
Hospital F ^a	2,076,033	2,224,173	148,140	148,939	148,939	0	2,224,972	2,373,112	148,140	6.7
Hospital G ^a	5,985,789	6,831,373	845,584	398,052	398,052	0	6,383,841	7,229,425	845,584	13.2
Hospital H	827,985	1,248,307	420,322	166,618	193,267	67,348	994,603	1,441,574	446,971	44.9
Hospital I	5,952,191	7,165,109	1,212,918	327,149	327,149	0	6,279,340	7,492,258	1,212,918	19.3
Hospital J ^a	14,763,082	14,763,082	0	1,483,968	1,483,968	0	16,247,050	16,247,050	0	0.0
Hospital K	3,433,421	3,433,421	0	368,079	369,079	0	3,801,500	3,801,500	0	0.0
Hospital L ^a	8,867,440	8,867,440	0	853,545	853,545	0	9,720,985	9,720,985	0	0.0
Hospital M	4,524,957	4,685,937	160,980	466,252	466,252	0	4,991,209	5,152,189	160,980	3.2
Hospital N	7,361,559	7,361,559	0	745,863	745,863	0	8,107,422	8,107,422	0	0.0
Hospital O	3,266,200	3,293,183	26,983	403,510	470,858	26,649	3,669,710	3,764,041	94,331	2.6
Hospital P	11,269,686	11,269,686	0	1,148,569	1,148,569	0	12,418,255	12,418,255	0	0.0
Hospital Q ^a	6,684,794	8,736,978	2,052,184	496,634	496,634	0	7,181,428	9,233,612	2,052,184	28.6
Hospital R ^a	22,231,055	22,231,055	0	1,975,673	1,975,673	0	24,206,728	24,206,728	0	0.0
Hospital S ^a	9,391,339	11,736,587	2,345,248	912,732	912,732	0	10,304,071	12,649,319	2,345,248	22.8

^aEACH is in a current or soon to be certified network.

exhibit no change. For a few hospitals, the differences between current PPS payment rates and their relative costliness during the 1980s can cause substantial increases in payment. For example, the most dramatic change in our simulation is for Hospital E in Table VII.1. This hospital's cost per case in 1982 (updated to 1994 and case-mix adjusted) was \$5,185, representing an increase of \$1,432 over its current PPS rate of \$3,753. By participating in the EACH program, Hospital E would be eligible for the 1982 rate, and with an estimated 2,098 Medicare discharges, would receive an increase of \$3,004,339 in Medicare payments.

We simulated Medicare capital payments under the EACH program as shown in Table VII.1. We found that of the 19 hospitals not already designated as SCHs, only 3 had increased capital payments, ranging from about \$5,000 to \$67,000. We found that most hospitals were paid under the fully prospective payment method under the transition and therefore were not eligible for additional capital payments. This is not surprising, given that most rural hospitals are paid on the basis of this method. However, we were surprised that no hospital in our simulation was eligible for the exceptions payment process in which payments are subject to a payment floor of 90 percent of aggregate Medicare capital costs. One possible explanation for this result is that the exceptions process is intended to apply to payments over several years. Our simulation used only a year's worth of cost data. Given these considerations, the Medicare capital payment results of our simulation should be viewed as a lower-bound estimate.

4. Sensitivity of Results to Errors in the Data

While our results illustrate the dramatic payment increases that will probably occur for a number of hospitals under the EACH program, the calculation of aggregate dollar increases for hospitals in our sample is subject to several assumptions, including estimates of FY 1994 costs, discharges, and case-mix based on FY 1992 data. In addition, we expected that calculations of Medicare operating payments for individual hospitals under SCH payment rules would be fairly sensitive to the accuracy

of the 1982 and 1987 cost-per-case data that we used.⁴ Therefore, we attempted to confirm the 1982 and 1987 rates based on HCFA data with actual rates used by Medicare fiscal intermediaries. Based on our findings, we conducted a sensitivity analysis by resimulating Medicare operating payments after allowing for increases and decreases in the applicable 1982 and 1987 rates of 3.5 percent.⁵

As shown in Table VII.2, the results of this sensitivity analysis confirm that simulation results are sensitive to changes in the hospital specific rate. However, our main conclusions do not appear to be altered by this analysis. Even our lower bound estimates demonstrate the likelihood of substantial payment increases under the EACH program: average Medicare operating payment increases for the 19 EACHs that are not already designated as SCHs ranged from about \$721,000 to about \$438,000.

5. Characteristics of Winning EACHs

Our simulation of Medicare payments also included an analysis of "winning" and "other" hospitals. The purpose of this analysis was to investigate why some hospitals gain under the EACH program while others are not affected. The main factor influencing payment increases is historical cost in 1982 and 1987. Therefore, we calculated the average of higher costs in 1982 and 1987 (updated to 1992) and compared them to costs in 1992 for three categories of hospitals in our simulation sample: (1) hospitals that are already SCHs, (2) non-SCH hospitals that were not financially affected by EACH program participation, and (3) hospitals receiving payment increases under EACH program

⁴The sensitivity of payments to changes in these costs can be illustrated by the following example. Consider a hospital with a historical, hospital-specific cost of \$4,000 per case, and assume that this represents a \$40 increase in payment per case above the PPS rate (\$3,960). In this case, a positive or negative 2 percent error of \$80 in calculating hospital-specific costs would lead either to a tripling in the payment increase (to \$120 above the PPS rate) or to a decrease of \$40 below the PPS rate, thus eliminating all payment advantages for that hospital.

⁵We derived our hospital-specific 1982 and 1987 historical costs on the basis of data from HCFA's FY 1994 Payment Impact File. On average, the difference between our rates and those of the fiscal intermediaries for the first four EACHs was about 3.5 percent. We reviewed the data with fiscal intermediaries in two states. Those in other states were unable to provide us with this information. That is, information in the Payment Impact File is not recalculated by FIs unless they are notified of a hospital's actual shift to SCH status.

TABLE VII.2
SENSITIVITY OF MEDICARE OPERATING PAYMENT
SIMULATION RESULTS FOR NON-SCH EACHs (FY 1994)

	Current Average Payments	With EACH Conversion	Difference	Percent Change
Simulation	\$8,246,564	\$8,808,186	\$561,633	6.8
Upper Bound Estimate	8,246,564	8,967,251	720,687	8.7
Lower Bound Estimate	8,246,564	8,684,455	437,891	5.3

participation. We also collected other information on hospital characteristics that may influence these hospital costs. Table VII.3 shows results of this analysis.

Not surprisingly, the costs per case in 1982 and 1987 (\$3,609 on average) for hospitals with increased payments in our simulation are substantially higher than the costs per case for hospitals with no change in payments (\$2,854). However, a surprising result is that average costs per case in 1992 are very similar across these two groups of hospitals (\$3,935 and \$3,727). This finding illustrates that large payment differences under the EACH program can be completely unrelated to current cost structures in hospitals.

We did not observe many significant differences in other characteristics having the potential to influence hospital cost. Case-mix (and therefore presumably service-mix) is fairly similar across all three groups. Hospitals with no change in payments in this simulation have more beds and more admissions than hospitals with increased payments. However, trends in size appear to be fairly similar in the two groups. For instance, admissions and bed size decreased in both from 1982 to 1991. Occupancy rates and trends in these rates are also similar in the two groups.

B. SIMULATED IMPACT OF RPCH CONVERSION ON FINANCIAL STATUS

A critical question in the analysis of the EACH program is the degree to which small hospitals will financially benefit from converting to RPCH status. The ultimate success of the program will depend on the degree to which it helps to build financially viable facilities. Few hospitals will convert unless they are convinced that the program will significantly improve their situation or that it is the only alternative to closure. However, the net financial benefit to any given hospital cannot be assumed. RPCH status creates a complicated trade-off between advantages, such as cost-based Medicare reimbursement, and disadvantages, such as reductions in non-Medicare patient revenue induced by service restrictions.

Unfortunately, because the program is so new, we cannot assess its financial impact on the basis of actual experience. Even for hospitals that converted first, delays in implementing Medicare's cost-

TABLE VII.3

COMPARISON OF WINNERS TO OTHER HOSPITALS
UNDER EACH PAYMENT RULES

	EACH Hospitals with Increased Payment (n = 11)	EACH Hospitals with No Change in Payment (n = 11)	EACH Hospitals That Are SCHs (n = 11)
Higher of Medicare Costs per Case in 1982 or 1987 ^a	\$3,609	\$2,854	\$3,865
Medicare Cost per Case, 1992	3,935	3,727	3,773
Number of Beds 1982 ^b	122	168	96
Number of Beds 1991 ^b	115	154	100
Number of Admissions, 1982 ^b	5,145	7,074	3,874
Number of Admissions, 1991 ^b	3,919	5,696	3,483
Occupancy Rate, 1982 ^b	72 %	73 %	77 %
Occupancy Rate, 1991 ^b	59 %	63 %	69 %
Case-Mix, 1992	1.2361	1.2019	1.1911

^aUpdated to 1992 and adjusted for case-mix.^bDerived from American Hospital Association data.

based reimbursement methodology has truncated a meaningful period of observation. We must therefore rely on simulations that use data from individual hospitals in order to gauge the likely impact of conversion to a RPCH. Although simulations based on microdata cannot provide conclusive evidence, they can suggest patterns for a range of key issues:

- The degree to which RPCH conversion will pull small hospitals back from the edge of financial collapse
- Whether conversion tends to help facilities that are in the greatest difficulty
- The degree to which RPCH service limitations reduce inpatient admissions and stays
- The extent to which the potential for reductions in utilization affects the financial outcome of conversion
- Types of facilities that tend to gain or lose under conversion

1. Methodology

Our assessment of the financial impact of RPCH conversion is based on data from a series of detailed simulation studies conducted by Wendling (1994).⁶ Using detailed historical data, the firm sought to assess the effects of RPCH conversion on 12 small, acute-care rural hospitals in Kansas. We re-analyzed the summary of findings and reports on individual facilities generated from the Wendling studies to evaluate the impact of conversion to RPCH status.

a. Analytical Framework

The net financial impact of converting to RPCH status is the result of several, potentially offsetting effects. The financial advantages and disadvantages of conversion are summarized in Table VII.4. By converting, a hospital can gain first from the cost cutting made possible by reduced requirements. For example, nursing costs otherwise incurred for night shifts can be cut back or

⁶Wendling, Noe, Nelson, and Johnson is an accounting firm in Kansas. The entire analysis in this section is made possible by Mr. John Wendling, who graciously agreed to share the results of his extensive work in assessing the financial impact of RPCH conversion on Kansas hospitals. Summaries of results are in Wendling 1993 and Wendling 1994.

TABLE VII.4
FINANCIAL ADVANTAGES AND DISADVANTAGES
OF RPDH STATUS

Advantages

1. Lower operating costs through reduced regulatory requirements
 - Hospitals need not remain open 24 hours if patients are not present
 - Hospitals can operate with mid-level practitioners, saving on salary guarantees and locum tenens expenses
2. Cost-Based Medicare reimbursement
 - RPDHs will be exempted from PPS, and their inpatient costs are to be paid on a reasonable-cost basis, including a prorated share of capital costs
 - Outpatient services will be paid on the basis of either (1) reasonable costs or (2) an all-inclusive rate that includes salaries of physicians and/or midlevel providers
3. Support for networking and restructuring
 - Grants for conversion
 - Payments to EACH, which encourage technical, clinical, and service support

Disadvantages

1. Increased cost from required ER capacity
 2. Reduced revenue from limitations on surgery and the 72-hour length of stay
 - Reduction in non-Medicare acute inpatient days and revenue due to diverted admissions
 - Transfer of Medicare patients at the end of 72 hours to swing beds with low per diem reimbursement, particularly if currently operating swing beds at a loss
 3. Adverse impact on non-Medicare operating margins due to reductions in utilization
 - Depending on cost allocation methods, margins of attached long-term care units may fall due to reduced shares of fixed overhead costs covered by acute inpatient days
 - Margins on non-Medicare acute inpatients will fall if induced drops in utilization raise costs per day
-

eliminated when inpatient beds are empty. RPCHs can also reduce the often substantial "locum tenens" costs of absent physicians by substituting a mid-level practitioner. To reinforce the benefits of cost reductions, the program offers cost-based payment instead of PPS reimbursement, at least in the short term, until HCFA develops a congressionally mandated prospective payment methodology.⁷ Current losses on inpatient and outpatient care of Medicare patients should be covered. (Some costs such as bad debt cannot be included in the cost basis.)

As for disadvantages, hospitals can lose if RPCH 24-hour emergency room requirements force hospitals to provide services not currently offered. Indeed, some RPCH grantees that are planning to actually convert licensure status are proposing not to maintain an emergency room in their facilities, since it would impose costly equipment, training, and staffing requirements. A more important phenomenon is the fact that RPCH service limitations can reduce inpatient days for Medicare and non-Medicare patients, but only the Medicare patients will be paid for on a cost basis. This is especially a problem if the non-Medicare patients are covered by higher-paying commercial insurance. Losses from diverted or curtailed admissions of such patients can be potentially significant.

Two less obvious potential negative effects would be caused by increases in acute inpatient costs per day due to induced reductions in utilization. If total days fall, but facility-wide fixed costs do not, under many cost allocation methods attached long-term care units will be responsible for a greater portion of overhead and create downward pressure on their operating margins. A high fixed-cost pattern can also mean that a reduction in patient days will boost costs per patient day. While cost-based Medicare will (under present reimbursement rules) cover such increased costs, other payers will not, eroding the operating margin for non-Medicare patients.

⁷The passage of the technical amendments in September 1994 delayed the due date for the design of a PPS until the end of 1995. However, the design of an actual methodology will in all likelihood require data on operating experience. Given lags in data availability, it will be 1998 before analysts have a minimum of two years of claims-based information and audited cost reports for five RPCHs.

b. Data on Financial Simulations

Estimating the financial impact of RPCH conversion requires detailed information on three main issues: (1) diverting patients to other hospitals who would otherwise have been admitted, (2) shifting patients who would otherwise have stayed as acute patients into swing beds, and (3) shifts in costs and revenue accompanying these changes in utilization. Fortunately, the Kansas EACH-RPCH program and related Kansas Rural Health Options Project (through grants from the Kansas Health Foundation) supported the development of a PC-based detailed financial simulation model, which was designed to simulate the impact of conversion on financial performance. The original model was developed jointly by John Wendling and Eldon Schumacher of the Great Plains Health Alliance. The model was subsequently applied both to 12 small Kansas hospitals by John Wendling and to scattered hospitals in other states, and the results are summarized by Wendling (1994). Given the short history of the RPCH program, the Wendling simulation studies are a reliable, cost-effective basis for assessing the financial impact of RPCH conversion.⁸

The model was designed to evaluate an individual hospital, comparing its "historic" operations for a specified study period with the situation that would occur if the only change was conversion to RPCH status.⁹ After utilization and financial data for a specific study period were collected, a random sample of patient records (typically 25 to 50 percent) was sent to the Kansas peer review organization (PRO) to determine the proportion of cases that would be diverted to another hospital, transferred, or shifted to swing beds. These records were evaluated under criteria specifying no obstetrics, no inpatient surgery under general anesthesia, and an absolute 72-hour length-of-stay limit. This length-of-stay limitation would be less restrictive but difficult to model under chart review.

⁸Other states such as South Dakota and Colorado have used the Wendling-Schumacher model. It was not possible to include these results in this report due to the lack of comparability in the individual hospital reports.

⁹For some hospitals, separate analyses were run to test the effect of a simultaneous introduction of a long-term care unit. The details of the model are described in Wendling 1993 and Wendling 1994.

Outpatient records were not reviewed, but outpatient visits were adjusted to account for inpatients found by the PRO to have probably been diverted under RPCH rules, but who would first be stabilized as outpatients.

In addition to the record reviews, hospital administrators were interviewed to determine how staffing and other costs would change under RPCH operations. These interviews sought to establish minimum staffing levels, including the expansion of cross-trained personnel. Although highly detailed data were collected, the units of analysis are the entire facilities, not their components. Financial status was therefore measured for the facility as a whole, not for inpatient, outpatient, or long-term care operations. The analysis was also limited to short-run operating ratios, not longer-run balance sheet measures.

Since the EACH-RPCH program does not mandate structural changes in RPCH facilities, the Wendling-Schumacher model focuses appropriately on the effect of the stated RPCH rules and reimbursement methodology. MPR staff adjusted the results to improve comparability between hospitals and facilitate summaries of the simulated impact of RPCH conversion on revenue, costs, and margins. Given Wendling's uniform presentation of results, however, we made only minor adjustments to the data. First, we adjusted each hospital's study period to a full calendar year ending December 31, 1993 by using PPS update factors for rural hospitals and prorating part-year study periods to 12-month observations.¹⁰ This facilitated a comparison of the 12 hospitals' financial ratios and the calculation of summary statistics. Second a few hospitals reported a line item as negative revenue, while others reported the same item as an expense. In these cases, we adjusted all reports to a consistent format when calculating group averages of revenues and expenses. As in Wendling's summary report, hospital confidentiality is maintained in reporting the results of our re-analysis.

¹⁰Appendix C includes adjusted revenue, cost, and utilization data for each hospital in the study along with the periods in which they were studied.

c. Background of Study Hospitals

The 12 hospitals in the study are small rural facilities in Kansas, 8 of which received a RPCH grant. These hospitals are very similar to the larger group of all RPCH grantees described in Chapter II. However, they tend to be slightly smaller, relatively more involved in long-term care, and their financial condition is more precarious. Since the study, three of these hospital have converted or are in the process of converting to RPCH status. Hospital participation was not random; some helped pay for an individual financial feasibility study.

The hospitals vary in size and services. At the time of the simulation studies (between 1992 and 1994), acute beds ranged from 10 to 36 licensed beds. Two hospitals have specialty units, including geropsychiatric and chemical dependency units. Six hospitals have long-term care units, which range in size from 14 to 36 beds. On average, their acute inpatient operations are small relative to their long-term care units. As shown in Table VII.5, utilization in terms of patient days in the intermediate care facility (ICF) and skilled nursing facility (SNF) units was almost 3.5 times that for acute care. Including swing bed days in the category of long-term care raises the ratio to 3.9. As expected, the hospitals depend heavily on Medicare--on average, 71 percent of inpatient acute days are reimbursed by Medicare. Patient care revenue does not cover operating costs. Including all acute inpatient, outpatient, and long-term care operations, the operating margin on all patient care averages -19 percent and requires \$221 thousand in local subsidies.¹¹ Even with nonoperating revenue, the average total revenue lags approximately 3 percent below total costs.

2. Overall Results of Simulations

The results of the 12 Wendling simulations fall into two categories: impact on utilization and impact on financial status.

¹¹Following conventions of the Prospective Payment Assessment Commission, operating margin is defined as the difference between total operating revenue and total operating expenses expressed as a percent of revenue. Total margin repeats this calculation including nonoperating revenues such as grants and subsidies.

TABLE VII.5
AVERAGE PROJECTED IMPACT OF RPCH CONVERSION ON FY94
FINANCIAL STATUS OF A RPCH GRANTEE
(12 Financial Simulation Studies by Wendling et al., 1994)

	Current Operation (FY 94)	Projected RPCH Operation	Change	Percent Change
Utilization				
Acute Patient Days	757.44	307.89	-449.55	-59.3
Percent Medicare	71.0	64.0	-7.0	-10.0
Swing Bed	329.47	409.76	80.29	24.4
LTC Unit	2,605.17	2,605.17	-0	0.0
Revenue (\$)				
Total Patient Charges	1,645,130	1,312,616	-332,514	-20.2
Inpatient	707,888	410,333	-297,555	-42.0
Outpatient	523,125	509,892	-13,233	-2.5
Swing bed	126,460	150,567	24,107	19.1
LTC unit	287,656	241,824	-45,832	-15.9
Adjustments to Charges	-288,585	-57,361	231,224	80.1
Other Operating Revenue	32,303	36,540	4,237	13.1
Total Operating Revenue	1,388,848	1,291,795	-97,053	-7.0
Total Nonoperating Revenue	220,690	220,690	0	0.0
Total Revenue	1,609,538	1,512,485	-97,053	-6.0
Operating Expenses (\$)				
Total	1,652,596	1,517,441	-135,155	-8.2
Salaries/wages/benefits	946,569	883,147	-63,422	-6.7
Other expenses	643,852	566,430	-77,422	-12.0
Depreciation	62,176	67,865	5,689	9.2
Financial Position				
Operating Income (\$)	-263,749	-225,646	38,103	14.5
Operating Margin (%)	-19.0	-17.5	1.5	8.0
Total Income (\$)	-43,058	-4,956	38,102	88.5
Operating Margin (%)	-2.7	-0.3	2.4	N/A

LTC = long-term care.

a. Induced Changes in Utilization

Utilization as measured by estimated changes in inpatient days is detailed in Table VII.5 and summarized in Figure VII.2. The Wendling-Schumacher model focuses on determining the extent to which the RPCH 72-hour limitation and the prohibition of inpatient surgery would change utilization patterns. The PRO estimated that acute patient days decline an average of 59 percent after conversion. Most of this drop is due to diverting admissions to other hospitals and the use of swing beds to shift longer-stay acute patients to nursing home status. Average swing-bed days are projected to increase by 24 percent. By assumption, the number of long-term care days were treated as completely independent of RPCH conversion.

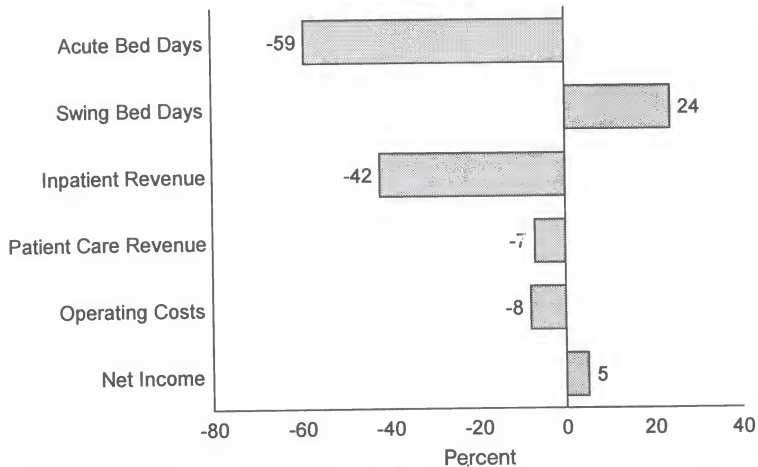
Interestingly, Medicare beneficiaries (presumably because of the comparatively longer stays of older patients) are projected to form a disproportionate share of the decline in utilization. A decrease in their patient days was enough to depress the average Medicare share from 71 to 64 percent.

b. Changes in Financial Status

According to the 12 individual simulations, the advantages of RPCH status would improve average operating margins. The projected gains, however, are modest and, on average, would leave the facilities dependent on continued substantial local subsidies. The minimal improvement is the net result of projected declines in both revenue and costs.

Impact of Conversion on Revenue. When operations in each facility are viewed as a whole, total operating revenue is projected to decline. Although the facilities will gain from cost-based Medicare payments, these positive effects are more than offset by projected drops in utilization. Unfortunately, the structure of the simulation studies does not allow us to directly trace revenue effects for inpatient, outpatient, swing bed, and nursing home operations. In Table VII.5, the category "patient charges" is defined not as payments received, but as total charges. Since Medicare and some other third parties do not pay posted charges, "adjustments" must be computed in order to indicate the amounts

FIGURE VII.2
SIMULATED CHANGES IN RPCH OPERATIONS
(Average of 12 RPCH Grantees)



SOURCE: Reanalysis of data from Wendling (1994).

by which payments differ from charges or remain uncollected for the observation period. On average, total charges of \$1,645,000 reduced by adjustments of \$288,000 and augmented by nonpatient revenue (e.g., cafeteria sales) generate \$1,389,000 in total operating revenue. This is further augmented by nonoperating revenue, primarily grants and subsidies from local government.

According to Table VII.5, the changes in utilization induced by a RPCH conversion would reduce total charges by 20 percent. The shift to cost-based Medicare reimbursement, however, would reduce the contractual adjustments from \$248,000 to only \$21,000.¹² As a result, total operating revenue drops by only 7 percent.

Impact of Conversion on Operating Costs. As expected, the shifts in utilization and cost reductions permitted by RPCH status cause total operating costs to decrease. The projected cost savings, however, are relatively modest, amounting to only an 8.2 percent reduction. (Staff costs drop by only 6.7 percent, compared with a 59.3 percent decline in inpatient days.) These projections agree with what site visit teams were told in interviews. RPCH grantees are usually so small that they have little flexibility to further reduce staff without eliminating shift coverage. While 24-hour RN coverage is not required for RPCHs, no facility is eager to move to this model; indeed, none are comfortable with RN-only coverage for emergency room units. Some facilities are concerned that reducing staff hours would require local personnel to work part-time, a move that would risk loss of the very limited supply of local nurses needed to respond on a 24-hour basis. More important, most of the 12 study hospitals have attached long-term care units that require 24-hour coverage. For these facilities, the marginal cost and hence, potential savings, of staffing one or two acute beds tends to be insignificant.

Net Impact of Conversion on Operating Margins. As shown in Table VII.5, the fact that costs are projected to fall by slightly more than revenue means that average operating margins will

¹²While the change in Medicare inpatient and outpatient payment policy under the EACH-RPCH program is primarily responsible for shifts in contractual adjustments, other factors are also present. These include, gaps between charges and Medicare payments for swing bed days, and changes in the relative portion of non-Medicare payors in revenue.

improve slightly from –19.0 to –17.5 percent. The continuing negative margin, however, means that converted RPCHs would still generate \$225,646 in losses that would presumably remain the primary responsibility of local government.

The simulations for individual hospitals differed significantly in the degree to which financial status was affected by RPCH conversion. Table VII.6 displays the distribution of projected changes in operating margins accompanying conversion to RPCH status. Eight of the 12 hospitals' operating margins improved within a range of 2 to 34 percentage points. Of the eight, only three could attribute the gains to projected reductions in operating expenses (data not shown). Four of the 12 hospitals' operating margins actually declined from between –6 to –23 percentage points. Interestingly, there is a general correlation between initial financial condition and projected change with RPCH conversion. In general, those experiencing very large losses tend to gain the most, but not nearly enough to place them on a sound footing. The operating margins of those that were initially stronger are projected to markedly deteriorate--a result of projected drops in revenue that are twice large as the drops in cost.

3. Factors Associated with Variations in Projected Financial Impact

The results of our analysis cannot be viewed as accurate predictions because the Wendling simulation studies depend on the judgment of medical record reviewers, and the revised RPCH rules passed by Congress ease the length-of-stay restriction from a case-specific limit to a facility average of 72 hours. However, the findings are evidence of the range of financial impact and the factors associated with improvements in financial status.

TABLE VII.6
DISTRIBUTION OF SIMULATED CHANGES
IN OPERATING MARGINS OF 12 RPCHs

Hospital	Before Conversion	After Conversion	Change
Major Improvement (n = 5)			
A	-42 %	-22 %	+20 %
D	-24	-13	+11
E	-34	-21	+12
J	-58	-43	+15
K	-64	-29	+34
Minor Improvement (n = 3)			
B	-14	-12	+2
G	-17	-8	+9
I	*	+6	+6
Deterioration (n = 4)			
C	*	-23	-23
F	-34	-35	-2
H	-8	-25	-17
L	+2	-4	-6

SOURCE: Re-analysis of data from Wendling (1994).

*Less than one percent.

The types of hospitals that realize financial benefits will be facilities that are ultimately drawn to the program. Wendling (1994) listed the following hospital characteristics associated with the *likelihood of financial gain*.¹³

- Negative Medicare PPS margins indicating inpatient payments below costs.
- High dependence on Medicare and thus less potential for reductions in the number of private-pay patients.
- Low initial average length of stay requiring few diversions of admissions or transfers to swing beds, particularly for non-Medicare patients. Hospitals with an average length of stay of greater than 4.5 days would tend to experience substantial losses in revenue.
- Completed downscaling, and no surgeries or deliveries.
- Current losses on outpatient visits, laboratory tests, and imaging services for Medicare patients.
- Current surplus for losses on outpatient visits.
- Expensive contractual obligations for physicians or mid-level practitioners.
- Lack of profitable subacute care hospital programs.

Given the small number of observations and the lack of available detail on the study hospitals, it is difficult to meaningfully test these propositions. We can, however, generally examine the following questions:

- Does the program help facilities that are in the greatest difficulty?
- What type of facility gains the most?
- How important is the potential for diverting patients in shaping the financial impact of conversion?

¹³Wendling's observations are based not only on the 12 simulations we re-analyzed, but also on four other partially published studies (Wendling 1993).

We used the change in hospital operating margin as an indicator of change in financial status in investigating these questions.

a. Likelihood of Improving Troubled Facilities

Hospitals with the worst operating ratios tend to improve the most, but not enough to render them self-sufficient. This pattern is illustrated in Figure VII.3, in which historic operating ratios are plotted against the change in operating ratios after RPCH conversion. All hospitals except one had negative operating incomes in the historical scenario, and the negatively related pattern clearly indicates that those in the worst state have the potential to make the greatest improvement.

b. Benefits for Small Versus Larger Hospitals

Since total operating margin often improves with size, we are inclined to ask whether larger hospitals--ones that tend to offer more services and serve a more complex patient mix--are less likely to benefit financially. Figure VII.4 shows two measures of hospital size, acute inpatient days and total operating expenditures (for acute, outpatient, and long-term care). The two measures apparently reflect different aspects of scale because they differ in the consistency of their evident correlation with improvements in operating margins. While the first exhibits a rough negative relationship (small hospitals improve more), the pattern for total operating expenses is less coherent. This is consistent with the focus of reimbursement and regulatory changes on the inpatient portion of hospital operations.

c. Relationship Between Diverting Patients and the Financial Outcome of Hospitals

Wendling (1994) stressed the idea that revenue losses from patient diversions have the potential to offset much of the financial advantage of being a RPCH. This is particularly important for non-Medicare patients, who would be subject to service limitations but not included in cost-based reimbursement.

FIGURE VII.3

FINANCIAL STATUS AND CHANGE IN OPERATING MARGINS

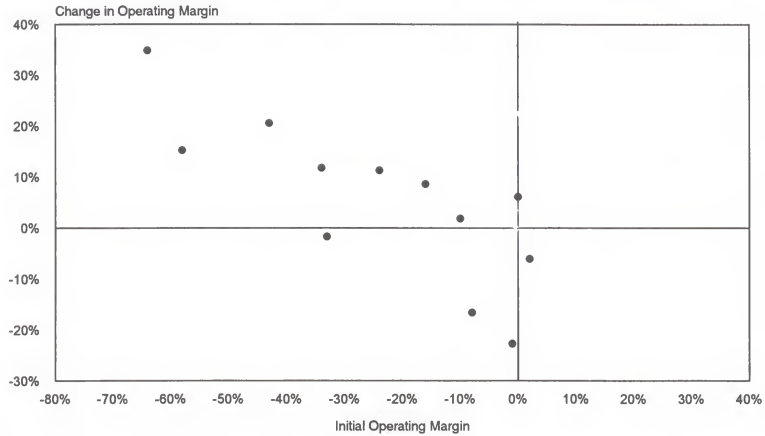
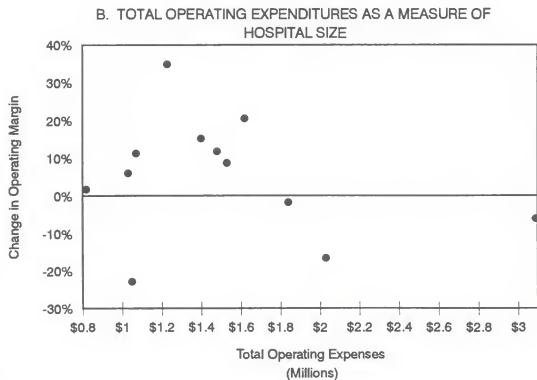
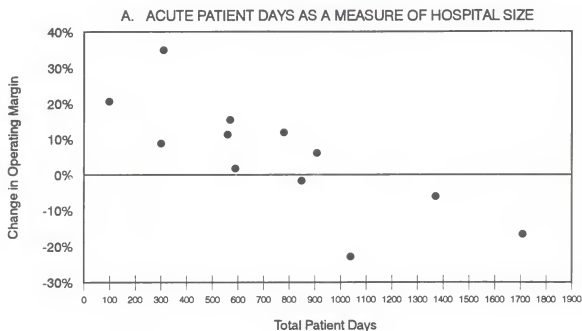


FIGURE VII.4

HOSPITAL SIZE AND CHANGE IN OPERATING MARGINS



In Figure VII.5, the distribution of projected changes in operating margin for the 12 Kansas hospitals is plotted against estimated changes in acute inpatient utilization under the RPCH scenario. Panel A shows reductions in Medicare acute patient days; Panel B shows the results for changes in non-Medicare acute patient days. Neither panel exhibits notably consistent relationships. Of the four hospitals with the largest percentage reductions in non-Medicare patient days, the operating margins of two improved, and those of the other two are projected to further deteriorate. Indeed, these four hospitals are the ones with the highest and lowest projected rates of change in operating margins.

Measures of percentage changes in patient days do not control for differences in the share of the non-Medicare patient days in hospitals. We therefore repeated the analysis in Figure VII.6, examining instead the historic (baseline) Medicare and non-Medicare inpatient days for acute patients. Panels A and B suggest a rough negative relationship between the proportion of Medicare inpatient days and increases in operating margin.

The results in Figures VII.5 and VII.6 contradict the presupposition that hospitals that depend on Medicare will tend to benefit more from RPCH conversion. Clearly, simple dependence on Medicare or reductions in Medicare compared to non-Medicare days is not the sole factor conditioning the ability to gain from RPCH reimbursement. Take for example a hospital that is losing large amounts on its Medicare patients, but finds its swing bed days profitable. In such a case, required reductions in Medicare acute days and substitution of increased swing bed days may produce a substantial net benefit, even though patient days are being diverted. The limited number of hospitals and lack of unit-specific data on costs, revenues and operating margins undercut the ability to trace through these different effects.

4. Conclusions and Limitations

The results reported here are limited in important ways. Although financial simulations have the advantage of focusing solely on changes in RPCH reimbursement, holding other factors constant, the results are conjectures--they are not based on empirical evidence. For instance, they assume a *strict*

FIGURE VII.5
REDUCTION IN UTILIZATION AND CHANGE IN
OPERATING MARGINS

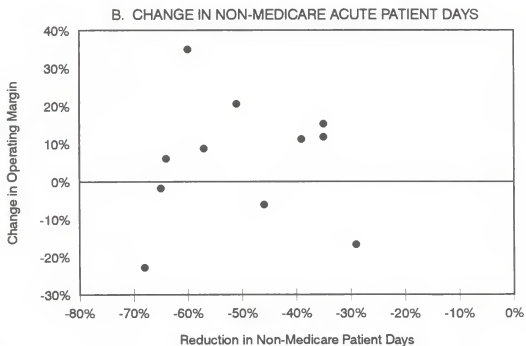
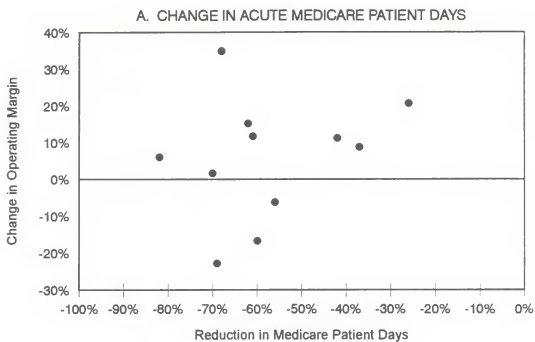
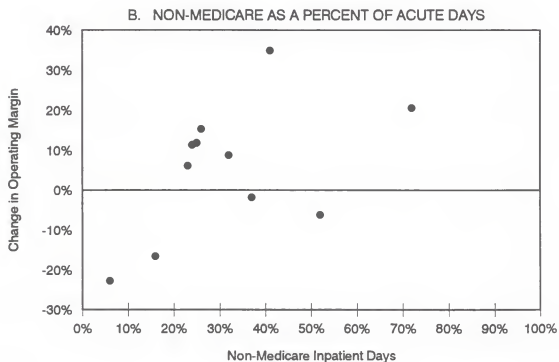
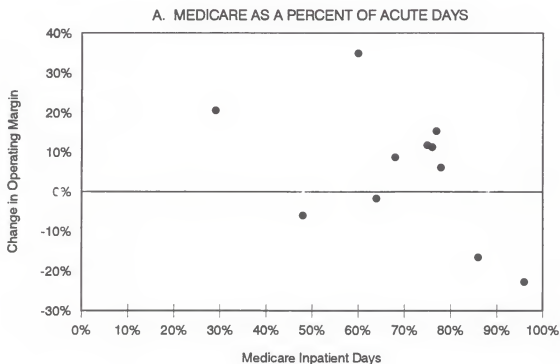


FIGURE VII.6 DEPENDENCE ON MEDICARE AND CHANGE IN OPERATING MARGINS



72-hour length of stay, not the recently enacted *average* 72-hour length of stay. Since four of the hospitals studied by Wendling have converted or are about to convert, it is useful to compare the predictions of the simulations with the degree to which operations actually changed.

In the simulation approach, the data are limited to 12 observations within one state, but different state Medicaid policies can substantially affect the projected financial outcome. For example, as in the Kansas studies, it was found in a financial feasibility study of two California RPCH grantees that both grantees would lose acute inpatient revenue but would gain on cost-based outpatient revenue (Pecora 1993). When inpatient and outpatient revenue are combined, one grantee was projected to suffer a net reduction (14.3 percent), and the other, to realize a small net gain (2.9 percent). Given limited cost reductions after conversion, net operating margin would either deteriorate or improve marginally. A more important factor is the future of their attached nursing homes. In California, RPCHs giving up their hospital licenses will apparently lose the licensure status required in order for MediCAL to classify their nursing homes as hospital-based. The result would be sharply lower reimbursement as free-standing SNFs. This shift reportedly undermines the financial feasibility of RPCH conversion. The financial outcome of RPCH conversions therefore depends not only on the characteristics of each facility, but on other aspects of the context in which the facility operates, including Medicaid policy, the willingness of commercial third parties to recognize RPCHs, and ultimate decisions on Medicare RPCH payment policy.¹⁴

Another important limitation is that the simulation results assume no substantive shifts in RPCH organization and structure. Small hospitals that convert are analyzed as if they retained their structure, reacting only to limits on inpatient stays and enjoying more liberal Medicare reimbursement. While many RPCH grantees would not object to being characterized in this way, we

¹⁴Facilities do not have information on the methodology by which they will ultimately be reimbursed. Operation of the interim cost-based system has only recently been fully implemented. Analysts have pointed out unresolved issues that can substantially affect operating margins. These include rules for capital costs and the treatment of satellite clinics, as well as reasonable-cost limits for physician services.

have described others that have taken the opportunity to significantly restructure their mission, facilities, and operations.

Financial feasibility studies have been conducted for grantees in West Virginia and Colorado that incorporate significant changes and therefore are qualitatively different from the more controlled simulations just reviewed. The ultimate financial results depend on the accuracy of assumptions about such issues as the number of local physicians, their willingness to serve as salaried employees, or the demand for an expanded long-term care unit. Nevertheless, to the degree that the program encourages structural change that would not otherwise have taken place, the financial impact reported here is limited.

The Wendling feasibility studies suggest that the program will help most small hospitals, but that without major restructuring of their operations, the benefits will not be enough to guarantee financial viability. This is not an entirely new observation. Steven Rosenberg (1993), an independent analyst, concluded, "RPHs that have multiple cost centers over which to allocate their fixed costs probably do not need cost-based reimbursement for inpatient services." In other words, more complex small hospitals would not notably tend to benefit from RPH conversion.

The results also indicate that in most cases, required local tax support will not fall significantly. Moreover, the Medicare payment formula may not in all cases forestall necessary future increases in local support. These effects are caused primarily by two factors: (1) the revenue lost from diversion of non-Medicare patients to other hospitals and the earlier transfer of Medicare patients to swing beds, and (2) the inability and/or unwillingness of grantees to use the program to cut costs. The extent of diversion has yet to be demonstrated. Initial results from the first RPH in Faulkton, South Dakota, indicate that the facility successfully avoided substantial diversions but aggressively used swing beds. Costs did not drop significantly partly because of the low ratio of acute bed days to long-term care stays in most studied hospitals. Facilities have also been reluctant to take

advantage of reduced staffing requirements by shifting to mid-level provider coverage or closing the facility when empty.

The Wendling feasibility studies also suggest that hospitals with certain characteristics are most likely to benefit financially from RPCH status, and that these are the ones most likely to convert. Those that are essentially already operating as a RPCH will tend to benefit the most. Those that do not depend on Medicare patients and/or must substantially downscale inpatient operations run the risk of seeing their revenues fall faster than costs. The limited number of observations indicates, however, that there is considerable variation despite these generalizations. Conditions differ from state to state, and even within a state, the impact on small hospitals is not highly predictable.

C. THE MAF PROGRAM IN MONTANA

The experience of the MAF program in Montana augments the information on financial impact. Unlike the somewhat speculative nature of simulations of the RPCH program, the three earliest operating MAFs provide empirical data on the financial aspects of limited-service hospitals. In this section, we supplement our simulation analysis of the RPCHs with a discussion of an analysis of cost report data submitted by hospitals operating before and during participation in the MAF program.

1. Medicare Payment Under the MAF Program

Hospitals participating in the MAF program are reimbursed for all Medicare costs, including inpatient and outpatient services. For MAFs, conversion means that Medicare inpatient services are no longer paid a prospectively determined rate under Medicare's PPS. Potential benefits of this change include (1) increased financial protection for hospitals with previous losses under Medicare PPS and (2) greater stability in Medicare payments that are less directly related to Medicare patient volume. For certain Medicare outpatient services, including laboratory, radiology, and diagnostic procedures, MAF hospitals are no longer paid under fee schedules. Like other small rural hospitals with small outpatient volumes, MAFs are likely to benefit from this change because their per-unit

costs for these service often exceed payment rates in fee schedules. Most other outpatient services, on the other hand, such as simple surgical procedures and drug treatments, are already paid based on a cost-basis and so would not be affected by payment changes.¹⁵ (For further discussion of MAF program operations see Chapter IV.)

2. Utility of MAF Data

Despite the usefulness of empirical data from an operational MAF program, the extent to which this information is comparable with the operation of the EACH-RPCH program is limited. First, the two programs have important differences. For MAFs, Medicare payments cover the sum of all acute inpatient and outpatient reasonable costs; the 96-hour length-of-stay limitation is also less restrictive, which by all reports has occasioned few diverted admissions. Second, two of the original MAFs had been closed, making meaningful pre-post comparisons difficult. Finally, three of the four original MAFs are very small and required little downsizing compared with what might be required of many RPCH grantees. The original four MAFs have attached nursing homes, operate Medicare-designated rural health clinics, or have other special relationships with their providers. Two are staffed by physician assistants with remote supervision. Indeed, few respondents indicated any substantial structural changes that occurred as an integral part of MAF status. Nonetheless, the existence of actual data on an operational, limited-licensure, rural hospital program warrants an analysis.

As a result of these differences, the financial experience of three of the four initial MAFs (Garfield County Hospital in Jordan, Prairie Community Hospital in Terry, and Dahl County Hospital in Ekalaka) is probably comparable only to very small proposed RPCHs that have yet to be certified. Nonetheless, the existence of actual data on an operational, limited-licensure, rural hospital program makes even a limited comparison useful. One MAF, Roosevelt Community Hospital in Culbertson,

¹⁵These services are reimbursed on the basis of the lesser of costs or charges; therefore, those hospitals with outpatient costs exceeding their charges would receive increased payment. The other major service provided in the outpatient setting are ambulatory surgical center (ASC)-approved procedures. Most small rural hospitals, including MAFs, are unlikely to perform these procedures.

is especially relevant, since it is an operating hospital that converted, but remains physician staffed. In this respect, it is similar to the small Kansas hospitals analyzed by Wendling.

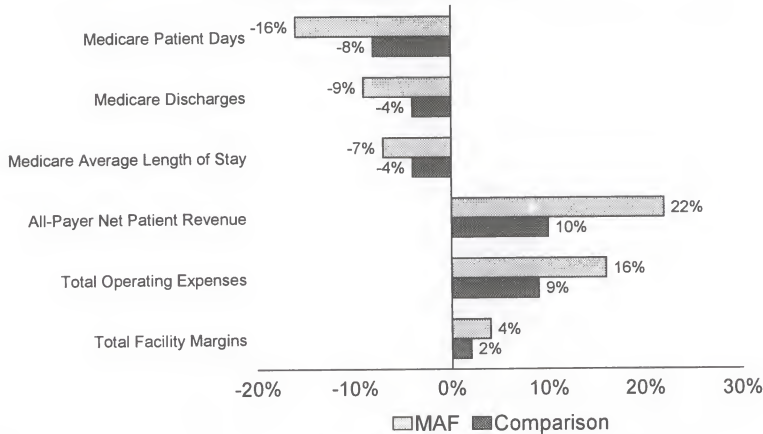
3. Analysis of MAF Data

To assess the effects of the MAF program on the financial status of converting hospitals, we analyzed Medicare cost report data submitted by six hospitals before and after they converted to MAFs. These results were compared with data from 14 small, rural comparison hospitals over the same periods (see Appendix A for details on comparison cohort). In general, our analysis suggests that use of MAF inpatient services declined during the conversion period, but the MAFs successfully provided more nonacute services in their facilities, with substantially improved financial results. As summarized in Figure VII.7, the analysis yielded the following more specific findings:

- After conversion to MAF status, inpatient days and discharges dropped at annual rates of 16 percent and 9 percent--two times that of comparison hospitals. Utilization for the comparison hospitals also decreased, suggesting that at least some of the decrease in inpatient days and discharges for MAFs would have occurred in absence of the MAF program.
- Average length of stay was roughly constant during this period for both groups of hospitals.
- Medicare's share of patient days increased slightly for MAFs and stayed the same for the comparison group during the pre- and post-MAF periods. Medicare's share of discharges increased for both groups.
- Despite decreases in MAF hospital patient volume, other aspects of facility operations grew at a rate similar to that of comparison hospitals. Total operating expenses for both MAF hospitals grew 16 percent per year, compared with 9 percent for comparisons hospitals.
- The shift to cost-based Medicare payments occasioned an annual rate of revenue growth of 22 percent for both MAFs compared with a 10 percent rate for comparison hospitals.
- Because revenue increases generally exceeded the growing expenses, the overall financial health of the hospitals appeared to improve. Total facility margins grew following MAF conversion. In the post-MAF period, all MAFs had positive total margins. Average comparison hospital margins also improved, but at a slightly lower rate.

FIGURE VII.7

AVERAGE ANNUAL CHANGE IN UTILIZATION AND FINANCIAL INDICATORS FROM PRE-MAF TO POST-MAF STATUS FOR MAFs AND COMPARISON HOSPITALS



- MAF hospitals continued to rely on nonpatient revenue (e.g., local subsidies) before and after conversion.

These results are more fully presented below, along with our methods and the hospital data used in the analysis.

a. Methods and Sample Hospitals

Most of the data for the operating MAF hospitals and the 14 comparison hospitals were collected from HCFA's electronic files, supplemented with more recent hard copy reports from the Montana fiscal intermediary.¹⁶ We examined two cost reporting periods representing pre-MAF and post-MAF periods. This method allowed us to compare trends for the MAFs during the conversion process with trends for comparison hospitals. The study periods compared were FY 1989-90 and FY 1992-93; the exact reporting period and MAF conversion dates differ across hospitals. Detailed information on all study hospitals appears in Appendix D.

We selected the pre- and post-MAF reporting periods to create as much time overlap as possible for individual hospitals (both MAF and comparison) so that we could account for any confounding trends in the small hospital market. We also attempted to represent periods at least one year before each conversion, and when possible, at least a year following conversion. Most pre-MAF cost reports cover 1989-1990; most post-MAF reports represent 1992-1993. Conversion dates range from December 1990 (McCone County Hospital in Circle) to March 1994 (Granite County Hospital in Philipsburg). Because our pre- and post-MAF periods vary, we standardized our trend analysis across hospitals by calculating an average annual percentage change. The data have not, however, been inflation-adjusted. The analysis therefore focuses on rates of change rather than levels of expenditures.

¹⁶Where necessary, data from cost reports representing less than a full year were annualized.

b. Limits on the Analysis

Our analysis is limited by several factors. Closed hospitals reopened, and data that could be used as measures of all pre- and post-MAF periods were lacking. Specifically, we were not able to collect any pre-MAF data on Garfield County Hospital in Jordan and Dahl County Hospital in Ekalaka or post-MAF data on Granite County Hospital in Philipsburg. In addition, although utilization data from the cost reports include inpatient hospital days, discharges, and average length of stay (for Medicare and all patients), information on swing bed utilization (Appendix D) appears to be incomplete in the post-MAF reporting periods.

The financial data includes all-payer revenues and expenses, and balance sheet information (assets net of liabilities). However, we were unable to calculate trends in Medicare cost and revenue because the Medicare cost and revenue reporting formats in the pre- and post-MAF periods are not comparable. (Under the reimbursement methodology, all inpatient and outpatient costs are aggregated.) This limitation essentially means that we were unable to calculate Medicare inpatient financial margins, a key indicator of hospital financial status under Medicare payment changes. We have therefore relied on total facility margins. However, revenue and expenses used to calculate this indicator are based on all patients and payers, and on all activities of the facility, including long-term care and activities unrelated to patient care. The fact that the observation periods are not identical for such a small sample introduces an additional element of potential error.

c. Results

Our analysis focused on the three MAFs with both pre- and post-MAF data (Circle, Terry, and Culbertson). Pre-MAF data for Circle and Terry pre-MAF data represent the period immediately before conversion, and post-MAF data are from several years after. For Culbertson, pre-MAF data is from several years before conversion, and post-MAF data represent about a year after conversion.

Trends in Utilization at MAF Hospitals. As hospitals began converting to MAF status in the early 1990s, average inpatient utilization across all MAFs was decreasing--with increases for only one

hospital (Terry). This drop in utilization was also reflected in trends for the comparison hospitals, suggesting that use would have decreased somewhat even in the absence of the program. This finding, that the fall in utilization among MAFs tends to outstrip the general decline among similar hospitals, appears consistent with the portrait of converting RPDs presented previously in Section B and in Chapter III.

As shown in Chapter III, Table III.7, Medicare patient days on average decreased 16 percent annually, while all patient days decreased 21 percent. In contrast, Medicare and all-payer patient days for the comparison hospitals declined by 8 percent each. The annual decline of 9 percent for Medicare discharges is about two times the rate for comparison hospitals. The Medicare share of inpatient days and discharges increased for MAFs. Medicare's share of discharges for the comparison hospitals also increased, but there was essentially no change in the share of days for these hospitals.¹⁷

Given the 96-hour stay requirement in the MAF program, it is not surprising that Medicare average length of stay decreased somewhat more for MAFs than for comparison hospitals from the pre- to the post-MAF periods. The average Medicare length of stay for MAFs dropped 7 percent annually, compared with a 4 percent decrease for the comparison group. However, length of stay for all patients increased 2 percent annually for MAFs, compared with a 1 percent decrease for the comparison hospitals.

Financial Trends. As shown in Table VII.8, net patient revenue increased an average of 22 percent annually from the pre- to post-MAF period, as compared with an annual 10 percent increase for the comparison hospitals. Expenses also increased an average of 16 percent annually during the study period for the three MAFs, compared with a 9 percent increase for the comparison group.

¹⁷Following the data in the last two columns of Table VII.7, the Medicare share of patient days prior to conversion was roughly similar for MAF and comparison hospitals--66 and 67 percent. While the Medicare share among comparison hospitals increased slightly to 69 percent, it increased sharply for MAFs to 81 percent.

TABLE VII.7

PRE- AND POST-MAF UTILIZATION INDICATORS

	MAF Hospitals						Mean for MAF Hospitals ^b	Mean for Comparison Hospitals ^c
	McCone (Circle)	Garfield (Jordan)	Prairie (Terry)	Roosevelt ^a (Culbertson)	Granite (Phillipsburg)	Dahl (Ekalaka)		
Medicare Patient Days								
Pre-MAF	237	N/A	36	402	171	N/A	225	469
Post-MAF	60	13	73	260	N/A	45	131	362
Annual Percentage Change	37 %	N/A	27 %	-22 %	N/A	N/A	-16 %	-8 %
All-Payer Patient Days								
Pre-MAF	303	N/A	58	706	217	N/A	356	694
Post-MAF	70	26	86	357	N/A	54	171	532
Annual Percentage Change	-39 %	N/A	-14 %	-8 %	N/A	N/A	-21 %	-8 %
Medicare Discharges								
Pre-MAF	49	N/A	11	99	30	N/A	53	110
Post-MAF	18	10	21	82	N/A	19	40	97
Annual Percentage Change	-28 %	N/A	24 %	-17 %	N/A	N/A	-9 %	-4 %
All-Payer Discharges								
Pre-MAF	94	N/A	23	273	55	N/A	130	204
Post-MAF	20	14	31	121	N/A	24	57	166
Annual Percentage Change	-40 %	N/A	10 %	-2 %	N/A	N/A	-24 %	-7 %
Medicare ALOS								
Pre-MAF	4.8	N/A	3.3	4.1	5.7	N/A	4.1	4.2
Post-MAF	3.3	1.3	3.5	3.2	N/A	2.4	3.3	3.8
Annual Percentage Change	-12 %	N/A	2 %	-6 %	N/A	N/A	-7 %	-4 %
All-Payer ALOS								
Pre-MAF	3.2	N/A	2.5	2.6	3.9	N/A	2.8	3.4
Post-MAF	3.5	1.9	2.8	3.0	N/A	2.3	3.0	3.3
Annual Percentage Change	-3 %	N/A	3 %	-6 %	N/A	N/A	-2 %	-1 %

*Utilization data were estimated in the pre-MAF period using data submitted to MPR directly from the hospital to account for apparent cost report entry errors.

^bIncludes Circle, Terry, and Culbertson. Jordan, Phillipsburg, and Ekalaka were excluded because of the lack of pre- or post-MAF data.

^cIncludes 14 small, rural comparison hospitals. The time spans between the pre- and post-periods differ but are generally two years. The percentage changes are annualized rates.

N/A=Not available.

TABLE VII.8
PRE-AND POST-MAF FINANCIAL INDICATORS

	MAF Hospitals						Mean for MAF Hospitals ^a	Mean for Comparison Hospitals ^b
	McCone (Circle)	Garfield (Jordan)	Prairie (Terry)	Roosevelt (Culbertson)	Granite (Phillipsburg)	Dahl (Ekalaka)		
Net Patient Revenue (All-Payer)								
Pre-MAF	N/A	N/A	517,375	1,391,164	607,752	N/A	954,270	1,234,729
Post-MAF	1,242,645	394,895	797,595	2,648,572	N/A	852,242	1,723,084	1,638,228
Annual Percentage Change	N/A	N/A	16 %	17 %	N/A	N/A	22 %	10 %
Nonpatient Revenue/ Total Revenue (All-Payer)								
Pre-MAF	N/A	N/A	0.23	0.10	0.12	N/A	0.16	.13
Post-MAF	0.12	0.33	0.22	0.07	N/A	0.23	0.15	.14
Annual Change	N/A	N/A	0.00	-0.01	N/A	N/A	-2 %	0.00
Hospital Operating Expenses								
Pre-MAF	N/A	N/A	643,194	1,687,990	786,797	N/A	1,165,592	1,474,118
Post-MAF	1,145,791	516,960	842,123	2,813,772	N/A	1,013,345	1,827,948	1,909,670
Annual Percentage Change	N/A	N/A	9 %	14 %	N/A	N/A	16 %	9 %
Total Facility Margins								
Pre-MAF	N/A	N/A	0.04	-0.10	-0.13	N/A	-0.03	-0.05
Post-MAF	0.18	0.13	0.18	0.02	N/A	0.09	0.10	0.01
Annual Change	N/A	N/A	0.05	0.04	N/A	N/A	0.04	0.02
Total Fund Balance (assets minus liabilities)								
Pre-MAF	645,235	N/A	600,936	1,619,863	467,220	N/A	836,088	836,088
Post-MAF	1,061,075	467,157	832,116	1,118,357	N/A	294,913	1,011,089	1,011,089
Annual Percentage Change	18 %	N/A	11 %	-9 %	N/A	N/A	7 %	7 %

^aIncludes Terry and Culbertson. Other hospitals were excluded because of missing data or lack of pre- or post-MAF data.

^bIncludes 14 small, rural comparison hospitals.

N/A=Not available.

In light of declines in inpatient utilization, the increases in revenue and expenses appear to be consistent with a substantially increased emphasis on nonacute care services, such as outpatient and skilled nursing care.

These changes, along with likely effects of Medicare payment changes, appear to have improved the overall financial pictures for the three MAFs with pre- and post-conversion data. Revenue gains have generally exceeded increases in expenses, thereby increasing overall facility margins in the process of conversion.¹⁸ From the pre-MAF to the post-MAF period, average total margins for MAFs increased from minus 3 percent to 10 percent. In fact, all hospitals show a positive total margin in the post-MAF period. (Margins also improved for the comparison group, but in a less dramatically.) The MAFs overall fund balance (total assets minus liabilities) also improved, averaging about a 7 percent increase pre-MAF to post-MAF, compared with the same improvement of 7 percent for the comparison group.

Despite improvements in overall financial status, reliance on local subsidies did not change significantly during the period. Nonpatient revenue, consisting primarily of local subsidies, decreased slightly from 16 percent before conversion to 15 percent of total revenue after conversion. The comparison hospitals relied slightly less on nonpatient revenue, increasing slightly from 13 to 14 percent over the two periods.

Finally, we found that the increase in total margins for the MAFs can be attributed to improved reimbursement relative to hospital charges for patient services. As shown in Appendix D, contractual allowances (the difference between charges and net revenue) were negative for most hospitals in the pre-MAF period and positive for most hospitals in the post-MAF period. While it is unfortunate that we cannot directly confirm this finding with the available data on all-payers, our results seem to be consistent with the expectation that the change to Medicare cost-based reimbursement would play a significant role in addressing financial losses under Medicare's PPS.

¹⁸Total hospital margins are the difference between total revenues and expenses expressed as a percentage of total revenues.

4. Conclusions

The overall picture of the impact of MAF conversion on the financial status of small hospitals is very positive. Before conversion, the facilities were losing money (with an average facility margin of minus 3 percent)--even with an average of \$162,000 in nonpatient revenue (largely local subsidies) and including nursing home operations. Conversion brought substantial changes. Compared with admissions in similar Montana hospitals, MAF admissions, length of stay, and total acute patient days dropped substantially. Medicare as a proportion of inpatient days increased slightly. Outpatient operations apparently grew, and net patient revenue jumped 22 percent a year, more than twice the rate for comparison hospitals. As a result, all the facilities had positive facility margins, which in 1993 averaged 10 percent. Part of this newly acquired financial health was the result of large local subsidies. If the strong positive margins continue, there will be clearly room to scale these back.

These actual results differ dramatically from the RPCH financial simulations. Although the simulations projected similar rapid declines in inpatient utilization, a key from the analysis of cost-reports finding is that the payment methodology would be insufficient to lift RPCHs into long-term financially viable positions. This difference may be a function of the far simpler mechanism for reimbursing lab, x-ray, and OPD operations offered by the MAF model. Unfortunately, the data do not allow us to explore in more detail the inpatient and outpatient differences in costs, utilization, and reimbursement.

D. IMPACT ON MEDICARE PROGRAM EXPENDITURES

A key consideration in terms of expanding the EACH-RPCH program is the longer-run cost impact of an operational program on Medicare expenditures. Estimates of this impact are covered in this section, which focuses on payments for RPCHs and the joint effect of payments to EACHs and RPCHs in a network. The estimates are based on a financial simulation that compares actual baseline Medicare expenditures with those that would occur if facilities were paid under the provisions of an operating network.

1. Medicare Payments to RPDHs

We estimated the change in Medicare payments for an operating RPDH by comparing payments before and after conversion for a "prototype" RPDH. This prototype is a composite of the 12 simulation studies by Wendling (1994). Information from these studies was used to estimate changes in patient utilization and facility operating costs. Medicare cost report data were merged to each simulation in order to estimate revenue and operating costs for swing beds and acute inpatient care. For stability, the data for the 12 Kansas facilities were averaged from the 1990, 1991, and 1992 cost reports.¹⁹

Although this approach has obvious speculative elements, it also allows us to analyze, at least to some extent, important issues even without pre- and post-conversion data. The technique also measures changes in utilization and costs that are estimated from a detailed analysis of current microdata. Many of the changes we wish to investigate are often difficult to isolate in the analysis of actual pre-post experience. For example, estimating the effect of RPDH restrictions on admissions requires (1) controlling for all other changes that drive patient demand and (2) the ability to estimate accurate statistical cost functions. Both of these analytical tasks would require far more observations than we are likely to see with converted RPDHs. Nevertheless, the estimates have significant limitations, which are discussed at the end of this chapter.

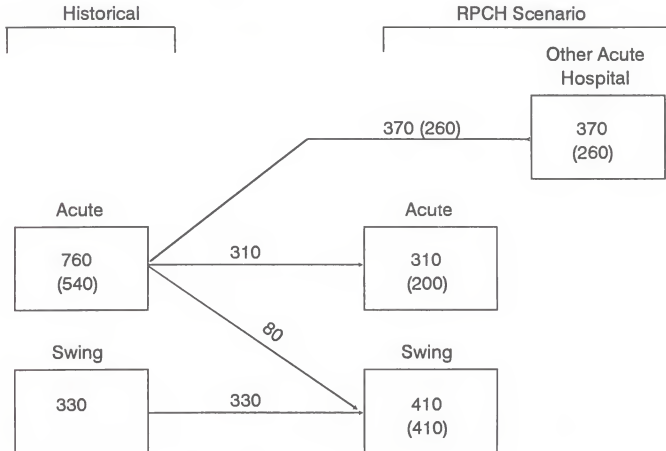
Figure VII.8 illustrates a basic model of projected changes in inpatient utilization for a prototype RPDH.²⁰ Historically, the RPDH had 760 patient days a year, 71 percent of which (540 days) were reimbursed by Medicare. The implied average daily census of 2.1 (760 divided by 365 days) was

¹⁹An alternative would have been to calculate the change in Medicare payments for each of the 12 hospitals. We elected the pooled sample approach for two reasons. First, the issue is not the diversity among hospitals but what the federal government can expect as the program expands. Second, we could use all the hospital data for calculating changes in utilization and costs even if a specific hospital did not report all data elements in the Medicare cost reports on file.

²⁰As noted, the Kansas PRO was asked to review a sample of each hospital's charts to determine the number of patient admissions that would be diverted to another hospitals or moved to a swing bed at the end of the 72-hour limit.

FIGURE VII.8

CHANGES IN PATIENT DAYS IN RPCH CONVERSION MODEL
(Medicare Days in Parentheses)



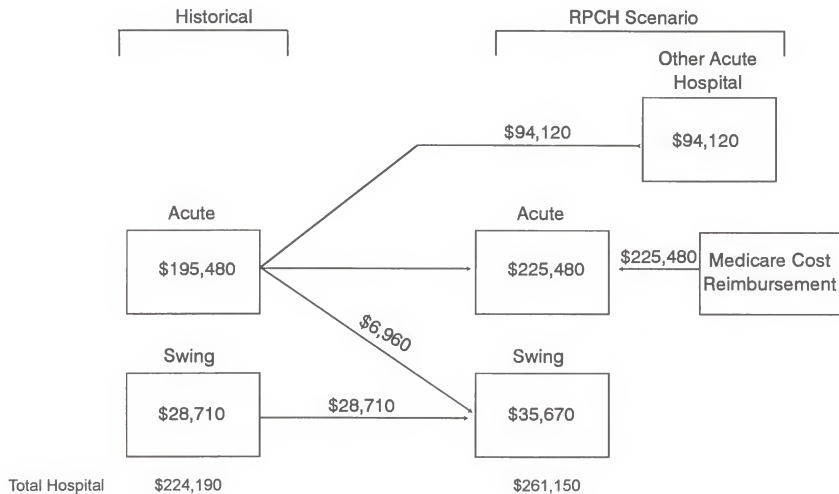
augmented by 330 swing-bed days. After a hospital converts to RPCH status, the Wendling studies estimate that the limitations will cause a substantial drop in acute inpatient days to only 310, 64 percent of which (200) are Medicare reimbursed. Most of the lost days (370) represent admissions diverted to larger facilities. Also, the analysis of patient records indicates that facilities can deal with the 72-hour restriction by more aggressively using swing beds for recovering elderly patients who are no longer acutely ill. The use of swing beds is projected to increase by 80 days. While the relaxed standard of an average 72-hour stay was enacted in October 1994, we have no information on how this would affect decisions on admissions and the use of swing beds.

These changes in utilization will affect the financial impact of RPCH conversion on hospitals. They also affect Medicare payments to the facility. To the degree that other acute hospitals have the same PPS adjustment factors as the RPCH, there will be little direct effect from patient diversion. Medicare will merely be paying another facility for patients that would have been admitted to the RPCH. Medicare will, however, have to pay more for the increased use of swing beds, since these inpatient days were once part of the PPS rate. Since the program is committed to paying reasonable costs of acute inpatient days, Medicare outlays will rise by the degree both to which facilities were losing money on inpatient stays before conversion and to which hospitals realize the cost savings allowed by RPCH rules and lower operating costs with the reductions in utilization.

Figure VII.9 illustrates the changes in Medicare payments for the shifts in patient days. Following Wendling's simulation, the analysis assumes that the only notable change in Medicare reimbursement will occur with inpatient operations.²¹ Prior to conversion, the hospital received \$224,190 in Medicare payments, 87 percent of which (\$195,480) was for acute inpatient stays. When a hospital converts to RPCH status, Medicare will still have to pay \$94,120 for the 260 patient days that were

²¹Limiting consideration to inpatient operations assumes that Medicare payments for outpatient department care currently cover allowable costs. It also assumes that there is no benefit to including attending medical staff in an all-inclusive rate for ambulatory care. Any induced changes in long-term care are likewise ignored. These simplifications agree with the results of the 12 Wendling simulation analyses.

FIGURE VII.9
CHANGE IN MEDICARE PAYMENTS IN THE RPCH CONVERSION MODEL



diverted to other hospitals.²² Medicare payments for the additional 80 swing bed days will rise by \$6,960 (using the Kansas swing bed reimbursement rate for 1992 of \$87 a day). Finally, total Medicare payments for inpatient care will rise by \$30,000 to \$225,480, a 15 percent increase that occurs even though patient days fall by more than half—from 540 to 200.

The exact amount of the total change in Medicare payments to RPCHs (Figure VII.9) for inpatient days is determined by five factors:

1. *The Degree to Which the Hospital Had a Negative PPS Operating Margin Prior to Conversion.* If hospitals serve Medicare inpatients at a loss, the losses will be covered under RPCH reimbursement.
2. *Reduction in Total Costs Afforded by a Drop in Inpatients.* The higher the fixed costs, the less likely it is that a decline in inpatient days will reduce Medicare cost-based reimbursements.
3. *Implementation of the Cost Reductions Allowed by RPCH Standards.* Reduced nurse staffing requirements and substitution of mid-level providers for on-site physicians can cut both operating costs and cost-based Medicare reimbursement.
4. *Changes in Medicare's Share of Inpatient Days.* The larger the share of acute inpatient units in total facility overhead, and the larger Medicare's share, the greater the reimbursement.
5. *Increase in Swing Bed Days.* Aggressive use of swing bed days for patients running into the length-of-stay limit will reduce the share of overhead costs allocated to inpatient stays.

For the prototype RPCH, these factors offset each other to some degree but result in a net increase to Medicare. First, most RPCH grantees are attracted to the program because they have been running unsustainable financial losses. The average PPS operating margin for the Kansas study

²²Prior to conversion, the facility received an average of \$362 per acute patient day, a coefficient derived as a weighted average from the 12 facility cost reports. Multiplying this by the 540 patient days in the facility and the 260 diverted Medicare days yields, respectively, \$195,480 and \$94,120. Since PPS reimburses by the case and not by the day, this calculation makes two assumptions: (1) diverted cases had the same DRG mix as those retained, and (2) similar patients will have the same length of stay as they would have had in the RPCH. We have no data to support or refute the first assumption. As to the second, the analysis in Chapter V suggests that Medicare stays are only slightly longer than those for comparison hospitals.

hospitals was negative 43 percent. This leaves a loss of approximately \$286 per patient day to be covered under cost-based reimbursement.²³

The second and third factors relate to changes in costs. While a drop in patient days will lower some costs, this decrease will be modulated by either a high proportion of fixed costs that do not respond to changes in acute inpatient days and/or an inability to benefit from relaxed requirements. According to the Wendling simulations, marginal costs of inpatient stays appear to be very low, resulting in cost savings of no higher than \$366 per inpatient day lost.²⁴ The data suggest that for each patient day lost, Medicare payments to RPDHs will fall at about the same rate as costs (\$366 and \$362, respectively). As a result, there is little room for a drop in patient days to yield net reductions in Medicare cost-based payments. This finding partly reflects the fact that the cost savings allowed to RPDHs requires radical restructuring that was neither desired nor possible because of attached nursing home units.²⁵

For the 12 study hospitals, changes in Medicare inpatient share will tend to reduce Medicare payments. The patient-day data in Figure VII.8 show that the Medicare shares drop from 71 to 64 percent. Wendling (1994) notes that non-Medicare patients tend to have shorter lengths of stay in many small hospitals, a pattern suggesting a systematic fall in Medicare share of inpatient costs. This pattern is reinforced by the declining share of acute care days relative to swing bed days. These shifts

²³Medicare cost report data indicate a weighted 1990-1992 average Medicare cost per inpatient day of \$648 dollars compared to PPS reimbursements of \$362.

²⁴The Wendling studies estimated that following conversion, operating costs would fall by a total of \$1.6 million for the 12 study hospitals. This decline is related both to changes in staffing requirements and a projected 5,394 reduction in acute days accompanying a 962 increase in swing bed days. The \$366 figure used here assumes identical marginal costs for both modes of care.

²⁵This phenomenon was covered in our discussion of the program's potential impact on RPDH financial status. In the seven states, only two or three facilities are seriously considering all-midlevel staffing, and these facilities are essentially already operating with a remotely supervised nurse practitioner or physician assistant.

will tend to reduce payments from the HCFA, but in so doing, they also tend to undermine the positive effects on RPDHs' financial status.²⁶

The final factor that influences the impact on Medicare payments concerns the clear incentive for facilities to expand their use of swing beds. Swing-bed payments for longer stays, which used to be covered on fixed PPS payments, represent new revenue. However, the low per diem reimbursement rate (\$87 in Kansas) and, by definition, short duration of former acute patients mean that the budgetary impact would be minuscule. Moreover, while representing improved revenues, it is perfectly possible for average per diem costs to run above reimbursement so that the facility continues to lose money on Medicare patients. This is also a particular problem for physicians who can bill for only one visit a week to long-term care patients. On several site visits, we were told by administrators and clinical personnel that the physical layout of many small hospitals encourages a single standard of care such that intensity remains the same regardless of their reimbursement status as acute or long-term care days.

2. Synthesis of Medicare Payments for an EACH-RPDH Network

If we combine the results of the analysis for RPDHs and EACHs, we would want to know how much Medicare can expect to pay over and above current levels for a fully operational network. The analysis of this issue is illustrated in Table VII.9 in four sections: additional payments to RPDHs, allowance for PPS payments required for diverted patients, amortization of the EACH-RPDH start-up grants, and the shift to SCH payment status for EACHs.

The first section on additional payments to RPDHs summarizes the results of the previous discussion. On the basis of detailed data from 12 small Kansas hospitals, Medicare payments to the hospital are projected to increase by \$36,960. Despite the induced drop in utilization, the increased

²⁶The estimates in Figure VII.9 do not account for these shifts in allocation of overhead cost among units and payors, an undertaking requiring more detailed information than readily available. If we assume that 60 percent of costs are effectively fixed (Feldstein 1983), the cost-based Medicare payments in Figure VII.9 would fall by approximately \$19,300.

TABLE VII.9
ANALYSIS OF CHANGES IN MEDICARE ANNUAL
EXPENDITURES FOR AN RPCH CONVERSION

1.	RPCH	
	Increase to cover initial losses	\$ 154,440
	Savings on shift from acute to swing beds	-29,280
	Savings on reduction in admission	-95,160
	Increase in swing-bed reimbursement	6,960
	Subtotal	36,960
2.	Diverted Patient Admissions	94,120
3.	Amortized Start-Up Grants	40,000
4.	SCH Payments to EACH	336,407
<hr/>		
	Total Change in Medicare Payments	507,487
	Additional Cost per Medicare RPCH Discharge	6,952

reimbursement primarily reflects the initial high PPS losses experienced by the facilities. In terms of Medicare, this situation is offset by savings generated by the increased use of swing beds. As shown in Figure VII.9, any savings in RPCH payments from diverted admissions are paid for by Medicare to other hospitals and are counted in line 2 as total payments of \$94,120.

Line 3 reflects the \$200,000 EACH and RPCH grants amortized over 10 years. The exact amount for this line is debatable, since the grants are neither tied to RPCH conversion nor used to support a large variety of structural changes. Moreover, the grants are sunk costs, not properly part of annual Medicare payments. Some portion of the grants, however, represent real costs to Medicare for an operating network.

The final line follows the discussion in Section B of this chapter on the estimates of EACH payments. These amounts are far more certain than the RPCH estimates but are highly sensitive to the specific EACH hospitals included in certified networks. The \$336,407 is the arithmetic average of current EACH grantees.

The expected value of *additional* Medicare payments for an operating network is approximately \$500,000, two-thirds of which represents additional payments to RPCHs. Given the scale of the hospitals involved, this represents a considerable investment, amounting to an additional \$6,952 for each projected discharge from a RPCH. More pointedly, the amount of the additional cost to Medicare approaches twice the average operating deficit of -\$264 thousand for the 12 Kansas hospitals analyzed in this chapter. It would appear to be far less expensive to maintain these small hospitals by simply covering their deficits, or at least their losses on Medicare patients.

E. CONCLUSIONS AND LIMITATIONS

What emerges from our investigation of the financial aspects of the EACH-RPCH program is a paradox: the program appears to offer limited financial benefits to RPCHs while increasing costs to the Medicare program. If the financial simulations reflect operating experience, a national

program of 20 EACH-RPCH networks would cost on the order of an additional \$10 million annually, with future increases partially tied to uncapped cost increases among participating facilities.

This conclusion is subject to three major caveats. First, there will be enormous variation among facilities. A network consisting of a RPCH without swing beds and experiencing minor PPS losses linked to an EACH that is already paid as an SCH will cost Medicare very little in additional payments. On the other hand, we already have networks that are initially costing four times the \$500,000 estimated in this chapter. The actual experience of the MAFs and the few operating RPCHs suggests that the simulations greatly overestimate the disruption of patient flows, but that converting hospitals enjoy substantially increased payments generated by cost-based reimbursement. The unpredictability of expenditures for a network is partly related to the fact the EACH payments depend primarily on the financial condition of EACHs in 1982 or 1987.

Second, the financial analyses largely ignore the important role of outpatient reimbursement. Inpatient stays are only a minor portion of the operation of most potential RPCHs. Indeed, two or three hospitals in the process of converting do not really intend to operate inpatient beds. We have little information on the financial profile of outpatient operations. Only time will reveal the relative effects of the two reimbursement options from which RPCHs may select. We should expect outpatient departments to ultimately determine facility viability and the cost implications for Medicare.

Finally, the analysis is static in that it ignores the many structural changes hospitals are making. It also ignores the recently enacted change in RPCH limits, the temporary status of Medicare payment rules, and possible beneficial changes in arrangements with non-Medicare payers. While some hospitals, particularly in West Virginia and North Carolina, have converted or are converting in the context of major reconfigurations, many RPCH grantees seek to support existing missions. The financial arrangements are such that the hospitals that will benefit the most appear to be those that need to change the least. For all intents and purposes, they are already operating as RPCHs.

Despite these uncertainties, it is safe to conclude that the future costs of the program to Medicare will be dominated by additional payments to EACHs. If we consider only the EACHs in existing or converting networks (Table VI.1), total annual additional Medicare payments in FY 1994 would run \$8.4 million, close to \$700,000 per network. This is twice the cost estimated in Table VII.9 of this chapter. While MAF revenues appear to have risen substantially, the absence of EACH payments and grants make the program considerably less expensive.

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APPENDIX A

PARTICIPATING HOSPITALS AND COMPARISON GROUPS

Table A.1 lists all designated networks receiving EACH-RPCH grants and includes grantees from all three waves of funding and non-grantee member hospitals. The network code refers to the locations of networks on the Figure II.1 maps. The hospital code identifies EACH grantees (E), RPCH grantees (P), member hospitals (M), and indicates with an asterisk grantees that withdrew from the program or are inactive. For grantees, the year the facility first received funding is noted. In the last column, the current status (as of March 1995) describes whether the grantee closed, withdrew from the program, is inactive or ineligible, and for certified RPCHs, the date of conversion.

The RPCH grantees and comparison hospitals we chose are listed in Table A.2. For every RPCH grantee, we selected two comparison hospitals that were matched as closely as possible on average inpatient census and location based on data from the American Hospital Association's *Guide to the Health Care Field* (1991). A close match on average inpatient census was considered essential. Therefore, we broadened our area of review until a close match was found, even though we had to choose hospitals in neighboring states in some cases. If a hospital was a close match on average inpatient census, we looked for geographic or market area factors that would make it unique. For example, if the potential match hospital was located next to a medium size city or a very large hospital (unlike the RPCH grantee), we did not consider it further. Likewise, if the RPCH grantee was in the mountains, we looked for two comparison hospitals in the mountains.¹

While every effort was made to include each of these grantees and comparison in the data analysis, we were unable to obtain data on or to find replacements for 6 facilities. In addition, New York facilities were excluded from most analyses, since one grantee had no inpatient admissions for the periods examined and the only other RPCH grantee is not actively pursuing certification.

How well does the comparison cohort mirror the RPCH grantees? Table A.3 compares the two groups for a key set of characteristics covering the size, operations, and community profile of the

¹The process was judgmental, but carefully considered. For example, if one of the comparison hospitals chosen for a RPCH grantee had several more inpatients on the average day, we chose the second to have several fewer.

hospitals. Overall, although there are no significant differences in the average daily census of grantee and comparison hospitals, the two groups do differ on other measures of size and scale. Comparison hospitals have more beds, significantly more Medicare inpatient days, and significantly fewer Medicaid days. Comparison hospitals also have more inpatient visits, lower costs per patient day, and significantly higher (lower negative) total patient operating margins.

TABLE A.1

KEY TO FEDERALLY FUNDED EACH-RPCH NETWORKS
(March 1995)

State	Network Code	Hospital Code	Hospital Name	Location	Year of First Grant	Status
CA	1	E P M	Mayers Memorial Hospital Surprise Valley Hospital Indian Valley Hospital District	Fall River Mills Cedarville Greenville	1991 1991 --	
		E P	Tahoe Forest Hospital Sierra Valley Community Hospital	Truckee Loyalton	1991 1991	
		E* P E	Redwood Memorial Hospital Southern Humboldt Community Hospital St. Joseph Hospital	Fortuna Garberville Eureka	1991 1991 1994	Withdrew-ineligible
CO	4	E P	San Luis Valley Regional Medical Center St. Joseph Hospital	Alamosa Del Norte	1992 1992	Closed
	5	E P	Valley View Hospital Pioneers Hospital	Glenwood Springs Meeker	1992 1992	
	6	E P P	St. Mary's Hospital Rangely District Hospital Lower Valley Hospital	Grand Junction Rangely Fruita	1992 1992 1994	
	7	E P	Arkansas Valley Regional Medical Center Weisbrod Memorial Hospital	La Junta Eads	1992 1992	
	8	E P	Routt Memorial Hospital Kremmling Memorial Hospital	Steamboat Springs Kremmling	1992 1992	
	9	E P	Sterling Regional Medical Center Haxtun Hospital District	Sterling Haxtun	1992 1992	
	10	P	Lincoln Community Hospital	Hugo	1994	(1)
	11	P	Kit Carson Memorial Hospital	Burlington	1994	(1)
	12	E P	Montrose Memorial Hospital Gunnison Valley Hospital	Montrose Gunnison	(2) 1994	

TABLE A.1 (continued)

State	Network Code	Hospital Code	Hospital Name	Location	Year of First Grant	Status
KS	13	E	St. Catherine Hospital	Garden City	1991	RPCH - 1/95
		P	Kearny County Hospital	Lakin	1991	
		P	Lane County Hospital	Dighton	1991	
		P	Wichita County Hospital	Leoti	1991	
		P*	Greeley County Hospital	Tribune	1991	
		P*	Hamilton County Hospital	Syracuse	1991	Withdrew
		P	Ashland District Hospital	Ashland	1991	Withdrew RPCH - 1/95
	14	E	Central Kansas Medical Center	Great Bend	1991	RPCH - 10/94
		P	Ellinwood District Hospital	Ellinwood	1991	
		P*	St. John Primary Care Hospital	St. John	1991	
		M	Clara Barton Hospital	Holsington	--	
		M	St. Francis Regional Medical Center	Wichita	--	(3)
	15	E	Hays Medical Center	Hays	1991	RPCH 3/94
		P	Grisell Memorial Hospital	Ransom	1991	
		P	Rawlins County Hospital	Atwood	1992	
		M	Plainville Rural Hospital	Plainville	--	
		M	Decatur County Hospital	Oberlin	--	
		M	Graham County Hospital	Hill City	--	Withdrew
		M	Trego County Hospital	Wakeeney	--	
		M	Northwest Kansas Regional Medical Center	Goodland	--	
		M	Citizens Medical Center	Colby	--	
		M (P*)	Sheridan County Hospital	Hoxie	1991	
	16	P*	Attica Hospital	Attica	1991	Inactive
	17	E	Asbury-Salina Regional Medical Center	Salina	1991	Withdrew
		P	Jewell County Hospital	Mankato	1991	
		M (P*)	Ottawa County Hospital	Minneapolis	1991	
		M	Republic County Hospital	Belville	--	
		M	Mitchell County Hospital	Beloit	--	
		M	Lincoln County Hospital	Lincoln	--	
	18	E*	Memorial Hospital Association	Manhattan	1991	Inactive
		P*	Dechairo Hospital	Westmoreland	1991	Withdrew-ineligible
		P*	Wamego City Hospital	Wamego	1991	Withdrew
	19	E*	Labette County Medical Center	Parsons	1991	Withdrew
		P	Oswego Memorial Hospital	Oswego	1991	Withdrew-Closed
		P*	Baxter Memorial Hospital	Baxter Springs	1991	
		E	Mt. Carmel Medical Center	Pittsburg	1994	
	20	E	Mercy Hospitals of Kansas	Independence	1992	
		P	Wilson County Hospital	Neodesha	1992	

TABLE A.1 (continued)

State	Network Code	Hospital Code	Hospital Name	Location	Year of First Grant	Status
KS (cont.)	21	E P	William Newton Memorial Hospital Cedar Vale Community Hospital	Winfield Cedar Vale	1992 1992	RPCH - 12/94
NY	22	E P P M	Olean General Hospital Cuba Memorial Hospital Salamanca Hospital District Authority WCA	Olean Cuba Salamanca Jamestown	1992 1992 1992 --	
		E P	Community General Hospital Grover Hermann Hospital	Harris Callicoon	1994 1994	
		E P	Champlain Valley Physicians Elizabethtown Community Hospital	Plattsburgh Elizabethtown	(2) 1994	
NC	25	E P	Richmond Memorial Hospital Anson County Hospital	Rockingham Wadesboro	1991 1991	
		E P	Chowan Hospital Bertie Memorial Hospital	Edenton Windsor	1991 1991	
	27	E* P*	Watauga Hospital Blowing Rock Hospital	Boone Blowing Rock	1991 1991	Inactive Withdrew
	28	E P M	Spruce Pine Hospital Burnsville Hospital Memorial Mission Hospital	Spruce Pine Burnsville Asheville	1991 1991 --	
	29	E P	Halifax Memorial Hospital Our Community Hospital	Roanoke Rapids Scotland Neck	1991 1991	
	30	E P	Cartaret General Hospital Sea Level Hospital	Morehead City Sealevel	1991 1991	RPCH - 12/94
	31	E P	Rutherford Hospital Crawley Memorial Hospital	Rutherfordton Boiling Springs	1992 1992	
SD	32	E P	Prairie Lakes Health Care Center Deuel County Memorial Hospital	Watertown Clear Lake	1991 1991	
	33	E P	St. Luke's Midland Regional Medical Center Holy Infant Hospital	Aberdeen Hoven	1991 1991	
	34	E P	St. Mary's Healthcare Center Gettysburg Medical Center	Pierre Gettysburg	1992 1992	RPCH - 10/94
	35	E P	Huron Regional Medical Center DeSmet Memorial Hospital	Huron DeSmet	1994 1994	

TABLE A.1 (continued)

State	Network Code	Hospital Code	Hospital Name	Location	Year of First Grant	Status
SD (cont.)	36	E	Queen of Peace Hospital	Mitchell Faulkton Armour	1994	RPCH - 11/93
		P	Faulk County Memorial Hospital		1994	
		P	Douglas County Memorial Hospital		1994	
	37	P	Five Counties Hospital	Lemmon	1994	(1)
WV	38	E	United Hospital Center	Clarksburg Grafton Webster Springs	1991	RPCH - 1/94
		P	Grafton City Hospital		1991	
		P	Webster County Memorial Hospital		1991	
	39	E	Davis Memorial Hospital	Elkins Marlinton Philippi	1991	RPCH - 1/94
		P	Pocahontas Memorial Hospital		1991	
		P	Broaddus Hospital		(4)	
	40	E	Logan General Hospital	Logan Logan	1991	
		P	Guyan Valley Hospital		1991	
	41	E	Summersville Memorial Hospital	Summersville Richwood	1994	
		P	Richwood Area Community Hospital		1994	
	42	E	Calhoun General Hospital	Grantsville Sistersville	1994	
		P	Sistersville General Hospital		1994	
	43	P	Morgan County War Memorial Hospital	Berkeley Springs	1994	(1)

E = EACH

P = RPCH

P* = Withdrawn or inactive RPCH

E* = Withdrawn or inactive EACH

(1) Funded as stand-alone RPCH grantees.

(2) Requested funds in 1994, but not funded.

(3) Requested funds for 1991 as EACH for Attica, but ineligible as an urban facility.

(4) Requested funds for 1992 and 1994, but not funded.

TABLE A.2
COMPARISON HOSPITALS FOR RPCH GRANTEES
AND MONTANA MEDICAL ASSISTANCE FACILITIES
10/12/92

Grantees and Comparison Hospitals by Location
Provider Number
(Average Daily Census)

RPCH Grantees	Comparison #1	Comparison #2
CALIFORNIA		
Surprise Valley Community Hospital Cedarville 050676 (.61)	Indian Valley Hospital District Greenville 050433 (1.9)	Modoc Medical Center Alturas 050430 (4.9)
Sierra Valley Community Hospital Loyalton 050355 (.62)	Pershing General Hospital Lovelock, NV 290011 (1.0)	Seneca District Hospital Chester 050333 (3.3)
Southern Humboldt Community Hospital Garberville 050482 (5.2)	Eastern Plumas District Hospital Portola 050566 (7.0)	Plumas District Hospital Quincy 050148 (7.9)
COLORADO		
St. Joseph Hospital Del Norte 060072 (11.0)	Heart of the Rockies Regional Medical Center Salida 060050 (16.0)	Southeast Colorado Hospital Springfield 060085 (9.8)
Pioneers Hospital Mecker 060041 (6.2)	Conejos County Hospital La Jara 060060 (6.4)	Clagett Memorial Hospital Rifle 060042 (5.5)
Rangely District Hospital Rangely 060073 (7.0)	Memorial Hospital Craig 060046 (8.5)	Gunnison Valley Hospital Gunnison 060070 (5.2)
Weisbrod Memorial County Hospital Eads 060047 (0.9)	Garden County Hospital Oshkosh, NE 280097 (3.0)	Yuma District Hospital Yuma 060056 (3.9)

TABLE A.2 (continued)

RPCH Grantees	Comparison #1	Comparison #2
COLORADO (continued)		
Haxtun Hospital District Haxtun 060058 (8.1)	Ogallala Community Hospital Ogallala, NE 280089 (8.0)	Melissa Memorial Hospital Holyoke 060038 (6.0)
Kremmling Memorial Hospital Kremmling 060090 (1.7)	South Lincoln Medical Center Kemmerer, WY 530017 (2.0)	Star Valley Hospital Afton, WY 530023 (5.0)
KANSAS		
Cedar Vale Community Hospital Cedar Vale 170108 (8.0)	Beaver Counter Memorial Hospital Beaver, OK 370082 (4.6)	Harper County Community Hospital Buffalo, OK 370108 (5.0)
Kearny County Hospital Lakin 170100 (5.2)	Stevens County Hospital Hugoton 170089 (4.9)	Satana District Hospital Satana 170139 (5.7)
Wichita County Hospital Leoti 170174 (7.8)	Hodgeman County Health Center Jetmore 170090 (7.3)	Meade District Hospital Meade 170055 (8.1)
Lane County Hospital Dighton 170108 (2.8)	Ashland District Hospital* Ashland 170050 (1.0)	Comanche County Hospital Coldwater 170036 (3.0)
Ellinwood District Hospital Ellinwood 170062 (5.2)	Salem Hospital Hillsboro 170026 (7.0)	Plainville Rural Hospital District No. One Plainville 170092 (4.9)
Rawlins County Hospital Atwood 170069 (5.4)	Cheyenne County Hospital St. Francis 170064 (5.4)	Sheridan County Hospital Hoxie 170063 (5.6)
Grisell Memorial Hospital Ransom 170121 (3.2)	Greeley County Hospital Tribune 170082 (3.5)	Ness County Hospital District Ness City 170066 (3.0)

TABLE A.2 (continued)

RPCH Grantees	Comparison #1	Comparison #2
KANSAS (continued)		
Attica Hospital District* Attica 170170 (3.0)	Alfalfa County Hospital Cherokee, OK 370110 (3.9)	Sumner County Hospital District One Caldwell 170152 (4.2)
Jewell County Hospital Mankato 170168 (1.8)	Pawnee County Memorial Hospital Pawnee City, NE 280073 (3.0)	Harlan County Hospital Alma, NE 280102 (5.0)
Dechairo Hospital Westmoreland 170044 (3.9)	Anderson County Hospital Garnett 170035 (5.0)	Franklin County Memorial Hospital Franklin, NE 280056 (6.0)
Oswego City Hospital Oswego 170159 (5.0)	Sedan City Hospital Sedan 170160 (7.3)	Fairfax Memorial Hospital Fairfax, OK 370133 (5.0)
Wilson County Hospital Neodesha 170073 (11.0)	Fredonia Norton Memorial City Hospital Fredonia 170018 (11.0)	Crawford County Hospital District No. 1 Girard 170098 (14.0)
MONTANA		
Garfield County MAF Ekalaka old: 270042 new: 271227 (Closed 6/30/88)	Broadwater Health Center Townsend 270006	Fallon Medical Complex Baker 270052
Dahl Memorial MAF Jordan old: 270070 new: 271226 (Closed 6/1/86)	Phillips County Hospital Malta 270046	Wheatland Memorial Hospital Harlowton 270033
McCone Hospital (MAF) McCone old: 270043 new: 271225	Mountainview Memorial Hospital White Sulphur Springs 270068	Roundup Memorial Hospital Roundup
Roosevelt Memorial Hospital Culbertson old: 270067 new: N/A	Ruby Valley Hospital Sheridan 270059	Daniels Memorial Hospital Scobey 270036

TABLE A.2 (continued)

RPCH Grantees	Comparison #1	Comparison #2
MONTANA (continued)		
Teton Medical Center Choteau 270031	Sweet Grass Community Hospital* Big Timber 270030	Minesal County Hospital Superior 270073
Prairie Community Hospital (MAF) Terry old: 271228 new: 270071	Liberty County Hospital Chester 270027	Mission River Medical Center Fort Benton 270072
Granite County Memorial Hospital Phillipsburg 270047	Madison Valley Hospital Eunis 270063	Powell County Memorial Hospital Deer Lodge 270041
NEW YORK		
Cuba Memorial Hospital Cuba 330039 (14.0)	Union City Memorial Hospital Union City, PA 390040 (13.0)	Montrose General Hospital Montrose, PA 390249 (12.0)
Salamanca Hospital District Salamanca 330174 (17.0)	Troy Community Hospital Troy, PA 390213 (21.0)	Jersey Shore Hospital Jersey Shore, PA 390106 (17.0)
NORTH CAROLINA		
Anson County Hospital Wadesboro 340084 (25.0)	Hamlet Hospital Hamlet 340106 (27.0)	Montgomery Memorial Hospital Troy 340063 (25.0)
Bertie Memorial Hospital Windsor 340101 (9.5)	Hoots Memorial Hospital Yadkinville 340006 (15.0)	Highlands-Cashiers Hospital Highlands 340146 (15.0)
Blowing Rock Hospital* Blowing Rock 340045 (22.0)	Charles A. Cannon Jr. Memorial Hospital Banner Elk 340005 (20.0)	Sloop Memorial Hospital Crossnore 340080 (20.0)
Our Community Hospital Scotland Neck 340122 (12.0)	Washington County Hospital Plymouth 340112 (19.0)	Martin General Hospital Williamston 340133 (20.0)

TABLE A.2 (continued)

RPCH Grantees	Comparison #1	Comparison #2
NORTH CAROLINA (continued)		
Sea Level Hospital Sealevel 340076 (6.7)	Hampton General Hospital Varnville, SC 420072 (13.0)	Lee County Memorial Hospital Bishopville, SC 420028 (14.0)
Crawley Memorial Hospital Boiling Springs 340104 (47.0)	St. Luke's Hospital Columbus 340018 (44.0)	Transylvania Community Hospital Brevard 340088 (48.0)
SOUTH DAKOTA		
Deuel County Memorial Hospital Clear Lake 430065 (2.1)	De Smet Memorial Hospital De Smet 430024 (3.6)	Flandreau Municipal Hospital Flandreau 430041 (3.0)
Holy Infant Hospital Hoven 430060 (3.2)	Des Praries Hospital Sisseton (7.0)	Eureka Community Hospital Eureka 430062 (5.2)
Fauk County Memorial Hospital Faulkton 430025 (4.4)	Bennett County Community Hospital Martin 430076 (5.0)	Five Counties Hospital Lemmon 430080 (1.5)
Gettysburg Memorial Hospital Gettysburg 430042 (4.4)	Estelline Community Hospital Estelline 430088 (4.9)	Freeman Community Hospital Freeman 430036 (5.0)
WEST VIRGINIA		
Grafton City Hospital Grafton 510020 (8.6)	Calhoun General Hospital* Grantsville 510063 (8.1)	Braxton County Memorial Hospital Gassaway 510084 (11.0)
Webster County Memorial Webster Springs 510025 (7.1)	Sistersville General Hospital* Sistersville 510065 (5.0)	Richwood Area Medical Center Richwood 510016 (11.0)

TABLE A.2 (continued)

RPCH Grantees	Comparison #1	Comparison #2
WEST VIRGINIA (continued)		
Pocahontas Memorial Hospital Marlington 510043 (14.0)	Preston Memorial Hospital Kingwood 510005 (17.0)	Man Appalachian Regional Hospital Man 510035 (17.0)
Guyan Valley Hospital Logan 510004 (11.0)	Boone Memorial Hospital Madison 510015 (15.0)	Bath County Community Hospital Hot Springs, VA 490099 (9.9)
Broaddus Hospital Philippi 510009 (10.0)	Morgan County War Memorial Hospital Berkeley Springs 510027 (7.0)	Hampshire Memorial Hospital Romney 510036 (6.0)

NOTE: *Change in status

Gunnison Valley Hospital became a RPCH grantee in 1994.

Calhoun General Hospital became an EACH grantee in 1994.

Sistersville General Hospital became an EACH grantee in 1994.

Sweet Grass Community Hospital may become a MAF in 1995.

Dechairo Hospital was declared ineligible and withdrew from the program.

Ashland District Hospital became a RPCH grantee in 1994.

Blowing Rock Hospital withdrew from the program and was switched to a comparison hospital.

Attica Hospital considered inactive.

TABLE A.3
SIMILARITY OF MAFs AND RPCH GRANTEES WITH
COMPARISON HOSPITALS
(1988 - 1990)

	All PCH Grantees (n = 39) ^a	All Comparison Hospitals (n = 78) ^a
Population Characteristics		
Population per square mile in home county, 1990	27.0 (39.9)	25.1 (44.4)
Percent change in population 1980 - 1990 in home county	-4.4 (11.0)	-3.2 (10.6)
Per capita income in home county, 1989	\$14,243 (3,071)	\$14,234 (3,016)
Percent change in per capita income 1979 - 89 in home county	91.0 (34.1)	85.2 (30.0)
Hospital Volume (Average 1988 - 90)		
Total acute plus LTC beds	24.6 ^b (13.1)	35.7 (20.5)
Total acute beds	22.9 ^b (12.5)	31.3 (18.5)
Average daily census (hospital)	7.8 (8.5)	9.7 (8.6)
Average Medicare hospital daily census	3.3 ^c (3.4)	5.0 (3.9)
Average Medicaid hospital and LTC daily census	10.2 ^c (13.6)	3.9 (6.6)
Outpatient visits per day	15.9 (15.7)	23.9 (21.8)
Market Share (1988-1989)		
Percent of Medicare inpatients in the service area discharged from the RPCH or comparison hospital	36.8 % (14.3)	42.3 % (12.9)
Financial Status (1990)		
Hospital cost per patient day	\$1,686 (2,575)	\$1,117 (894)
Cost per outpatient visit	\$98 (90)	\$110 (82)
Operating margin on patient care	-0.31 ^c (0.32)	-0.16 (0.19)

SOURCES: Most tabulations by Center for Health Services Research, University of Minnesota from the Area Resources File for September 1991 and Medicare Cost Reports (Hospital Cost Report Information System) for fiscal years starting in 1988, 1989 and 1990 (PPS V-VII). Market share calculation by Mathematica Policy Research from claims data from the 1989 and 1990 Market Area File for Medicare discharges.

^aRPCH grantees exclude 3 hospitals with missing data, but include three MAF hospitals in Montana. The comparison hospitals include six Montana hospitals.

^{b,c}Indicates significant difference in t-statistics at the .05 or .01 level, respectively. Standard deviations indicated in parentheses.

APPENDIX B

MONITORING REPORTS METHODOLOGY

This appendix describes the data collected from EACH-RPCH grantees in reporting forms designed to track their use of funds in relation to program activities. The following sections describe the data collection process, the information's limitations, and display basic utilization information from respondents.

A. DATA COLLECTION METHODOLOGY

Hospitals participating in the EACH-RPCH program were asked to complete periodic forms reporting on their use of grant funds, grant-funded activities, changes in hospital operations and network activities. The forms were designed to: (1) track the progress of grantees in implementing the program, and (2) provide operational and environmental information needed for evaluation.

Grantees filled out a background report covering services, staffing, outpatient and inpatient operations, financial status, character of their service areas, and relationships with each other prior to the grant. Given the late start of the program in all hospitals, respondents were to describe their background situation as of December 31st the year they were first awarded the grant. Subsequent monitoring reports contained questions on facility changes and financial status (staffing, utilization, observed changes), project progress and major activities, availability of hospital services, grant expenditures, and network implementation (accomplishments and challenges). Grantees submitted their first follow-up progress report on program activities and expenditures as of the end of the first year. After this first-year progress report, grantees completed reports every six months. Table B.1 identifies the reports that grantees received.

The number of hospitals completing these progress reports was limited by factors shown in Table B.2. All grantee hospitals received these reports unless they had either officially dropped out of the program, were inactive, or had expended their grant funds. Twelve facilities dropped out because of closure, ineligibility of a network member, or a decision not to participate.

Also not completing the progress reports were hospitals that participated, sometimes quite actively, as network members without grants or as members of unfunded state program networks.

TABLE B.1

TIME PERIODS COVERED BY EACH-RPCH REPORTS

	Background Report		Monitoring Reports							
	As of 12/91	As of 12/92	10/91 -3/92	4/92 -9/93	10/91 -9/92	10/92 -3/93	4/93 -9/93	10/92 -9/93	10/93 -3/94	4/94 -9/94
States	✓		✓	✓		✓	✓		✓	✓
FY 91 Grantees	✓				#	✓	✓		✓	
FY 92 Grantees		✓						#	✓	✓ ^a

NOTE: ^aReports received too late to be included in analysis.

✓ = 6-month reports

= 12-month reports

TABLE B.2
SUMMARY OF GRANTEES

	EACH Grantees	RPCH Grantees	Total Networks
Total Number of Grantees	31	44	32
Total First Awarded in FY 1992	11	13	11
Total First Awarded in FY 1991	20	31	21
Facilities Excluded from Progress Report Tabulations:			
Facilities closed	--	1	
Facilities withdrawing	1	9	
Facilities ineligible	1	1	
Facilities inactive	3	1	
Tabulated Responses to Progress Reports	26	32	27

Hospitals do not have to receive grants to become an EACH or RPDH or participate in the program. Indeed, the first two certified RPDHs were not grantees prior to conversion and hence not included in the monitoring report data. In addition, California, New York, and Kansas had networks participating in state planning that were either judged ineligible for the federal program or were not successful in the grant review process. Other participant states have designated "member hospitals," a category that does not have federal status.

Upon receipt, we reviewed the completed reports to minimize the number of missing or problematic items. This process included calling grantees to complete and clarify items. In several cases, we wrote to state program coordinators requesting their assistance with delinquent progress reports and encouraging grantees to respond. Our verification process allowed for reviewing and editing individual reports, but possible conflicts from one report to the next were not systematically analyzed.

B. DATA LIMITATIONS

The data collected through these reports is limited in a few ways: small number of participating hospitals, missing reports, seasonal bias, varying respondents, limited verification process. Since the sample size is quite small, the ability to detect program differences is limited. Given the varied experiences of each of the grantees, the standard deviations on most tabulations are quite large.

In a number of cases, missing reports or other missing data limit the available data. Some grantees were not active participants early in the program, so reports were not as carefully completed. Every grantee responded at least once, but some grantees spent all of their grant funds early in their participation and failed to complete later forms.¹ FY 1991 grantees completed as many as five monitoring reports, but FY 1992 grantees completed only two that were returned in time to be used in the final report tabulations.

¹Two grantees spent all their grant funds in one period and were not sent later reports. Three other grantees spent all their grant funds early on and did not complete later reports.

These data are not totally comparable. We combine two different grant periods and the periods of active participation varies across grantees. The earliest end point is less than eighteen months from the latest end point. Although the time periods covered vary, the larger issue is how the length of time between the first and last reports vary.

We examined the time between the first and last reports by comparing the number of months between the midpoint of the first reporting period and the midpoint of the last reporting period. As an example, consider a grantee that completed the first monitoring report and later completed the third monitoring report as their last report. The midpoint of the first report (covering months one to twelve) is six, and the midpoint of the third report (covering months nineteen to twenty-four) is twenty-one, therefore the period between the report midpoints is fifteen months. For one-third of the tabulated grantees, this period was 21 months, and for another third, it was less than 10 months. The observation period for converting facilities averages 4 months longer than that for nonconverting facilities.

The progress reports referenced varying time periods, therefore some part of measured rates of change may be explained by seasonal variations. The first report covered the period from October to September, while subsequent reporting periods were covered October to March and April to September. In most cases, the October to March period would likely see higher admissions and the April to September, lower. Given the small number of observations, it is not possible to isolate these influences.

Given the significant administrative turnover at most facilities, the respondent could vary from one period to the next, generating possibly differing interpretations of questions. For example, not everyone interpreted the concept of an FTE in the same way or were consistent as to which staff members to include in staffing questions. Reports on outpatient visits faced similar difficulties. Differing respondents may have had a greater impact to the broad number of subjective questions.

C. REPORTED RPCH UTILIZATION

Tables B.3 and B.4 offer a detailed look at two key elements of the changes in RPCH operations. Both tables list the grantees by conversion status. RPCH conversions are broken into two subgroups: grantees that have already converted and those that have either applied for survey (indicated with an asterisk) or indicated on their last monitoring report a high degree of certainty of pursuing certification. All other grantees used in tabulating the data from the monitoring reports are listed among the nonconverting hospitals. Means are provided for both groups and for all grantees.

Table B.3 lists the number of full-time primary care physicians practicing at each RPCH at the beginning and ending periods and the change over time. The data for all primary care physicians are listed first then broken down into general practice/family practice (GP/FP) physicians and primary care specialists. Primary care specialists include internists, general surgeons, obstetrician/gynecologists, and pediatricians. In addition to the means provided for converting facilities, we excluded Logan and recomputed the means. Logan's numbers are artificially high, since all physicians at the EACH practice at the RPCH.

Table B.4 lists changes in facility utilization as represented by key set of characteristics: staffed acute beds, swing beds, and long term care beds, patient days by type of beds, outpatient department visits, and acute admissions. The numbers are listed for the initial reporting period along with the percentage rate of change. Rates of change are annualized to correct for varying lengths of time between the beginning and ending points of observation.²

This table also includes indicators for financial status and seasonal bias. Financial status, like a grade point average, ranges from 1 to 4: 1=poor, 2=fair, 3=good, and 4=excellent. As mentioned in section B above, some part of measured rates of change may be explained by seasonal variations. A "U" in the bias column indicates an upward seasonal bias, variations that may be influenced by

²The period between the first and last midpoints of observation varies from 6 to 21 months. The rate of change divided by the number of months between the midpoint of the first report to the midpoint of the last report and multiplied by 12 months gives the annual rate of change.

TABLE B.3
CHANGES IN PRIMARY CARE PHYSICIAN SUPPLY

Hospital		State	All Physicians			GP/FPs			Primary care specialists		
			Begin	End	Change	Begin	End	Change	Begin	End	Change
I. RPCH Conversions											
A. Completed											
1	Dighton	KS	2	1	-1	2	1	-1	0	0	0
2	Ellinwood	KS	1	1	0	1	1	0	0	0	0
3	Ransom	KS	2	2	0	2	2	0	0	0	0
4	Cedar Vale	KS	1	1	0	1	1	0	0	0	0
5	Sealevel	NC	0	0	0	0	0	0	0	0	0
6	Gettysburg	SD	1	1	0	1	1	0	0	0	0
7	Webster Springs	WV	2	2	0	2	2	0	0	0	0
B. In Process											
8	Loyalton	CA	2	2	0	2	2	0	0	0	0
9	Leoti *	KS	1	1	0	1	1	0	0	0	0
10	Oswego *	KS	4	0	-4	4	0	-4	0	0	0
11	Salamanca *	NY	3	3	0	1	1	0	2	2	0
12	Scotland Neck	NC	2	3	1	1	1	0	1	2	1
13	Boiling Springs *	NC	2	2	0	2	2	0	0	0	0
14	Logan *	WV	28	32	4	14	15	1	14	17	3
Average for Conversions			3.6	3.6	0.0	2.4	2.1	-0.3	1.2	1.5	0.3
Average for Conversions excluding Logan			1.8	1.5	-0.3	1.5	1.2	-0.4	0.2	0.3	0.1
II. Nonconversions											
15	Cedarville	CA	2	2	0	1	1	0	1	1	0
16	Meeker	CO	2	2	0	2	2	0	0	0	0
17	Rangely	CO	3	3	0	3	3	0	0	0	0
18	Eads	CO	3	3	0	3	3	0	0	0	0
19	Kremmling	CO	3	4	1	3	3	0	0	1	1
20	Haxtun	CO	2	4	2	2	2	0	0	2	2
21	Lakin	KS	2	1	-1	2	1	-1	0	0	0
22	Atwood	KS	1	2	1	1	1	0	0	1	1
23	Mankato	KS	2	1	-1	1	1	0	0	0	0
24	Neodesha	KS	3	3	0	3	3	0	0	0	0
25	Cuba	NY	7	9	2	4	5	1	3	4	1
26	Wadesboro	NC	10	10	0	4	6	2	6	4	-2
27	Windsor	NC	5	5	0	3	3	0	2	2	0
28	Burnsville	NC	0	5	5	0	1	1	0	4	4
29	Clear Lake	SD	2	2	0	2	2	0	0	0	0
30	Hoven	SD	1	1	0	1	1	0	0	0	0
31	Grafton	WV	9	9	0	6	6	0	3	3	0
32	Marlinton	WV	3	3	0	3	3	0	0	0	0
Average for Nonconversions			3.3	3.8	0.5	2.4	2.6	0.2	0.8	1.2	0.4
Average for All Grantees			3.5	3.8	0.3	2.4	2.4	-0.0	1.0	1.3	0.3

Notes:

1. Bias: "U" indicates an upward seasonal bias. "D" indicates a downward seasonal bias. "N" indicates no seasonal bias.
2. Financial Status: 1=poor, 2=fair, 3=good, 4=excellent.
3. In Process facilities have applied for survey or reported at least a high probability of RPCH conversion on their most recent monitoring reports. *Indicates application for or completed survey.
4. Logan is excluded since all of the physicians at EACH practice at RPCH. (Hospitals are under the same ownership.)

TABLE B.4

CHANGES IN FACILITY UTILIZATION

	Hospital	State	Bias	Acute Beds		Swing Beds		LTC Beds		Acute Patient Days		Swing Bed Days		LTC Days		Outpatient Visits		Acute Admissions	
				Initial	% Change	Initial	% Change	Initial	% Change	Initial	% Change	Initial	% Change	Initial	% Change	Initial	% Change	Initial	% Change
I.	RPCH Conversions																		
	A Completed																		
1	Dighton	KS	U	10	0.0%	4	0.0%	21	0.0%	421	-23.2%	581	10.9%	7,490	-2.4%	6,318	-1.5%	122	-20.6%
2	Ellinwood	KS	U	24	0.0%	5	11.4%	0	0.0%	376	-3.0%	6,195	-14.8%	0	na	8,848	-18.2%	130	2.6%
3	Ransom	KS	U	18	-19.0%	4	28.6%	42	-10.9%	407	-4.6%	633	11.6%	10,765	-15.0%	2,512	108.6%	124	13.8%
4	Cedar Vale	KS	D	35	0.0%	0	0.0%	0	0.0%	665	-7.3%	607	316.3%	0	na	4,140	183.6%	137	27.4%
5	Sealevel	NC	D	0	0.0%	0	0.0%	66	46.1%	0	0.0%	0	0.0%	23,313	29.4%	0	0.0%	0	0.0%
6	Gettysburg	SD	U	28	0.0%	6	0.0%	60	0.0%	1,047	-31.5%	na	na	21,170	-7.4%	18,391	-10.8%	266	-13.0%
7	Webster Springs	WV	U	35	-37.6%	0	0.0%	0	0.0%	1,880	-28.6%	0	na	0	na	7,266	-2.6%	395	-24.4%
B	In Process																		
8	Loyalton	CA	D	6	0.0%	0	0.0%	34	0.0%	291	-70.1%	0	0.0%	11,496	4.8%	7,862	-37.8%	82	-62.4%
9	Leoti *	KS	U	13	0.0%	6	0.0%	30	0.0%	441	-4.0%	930	-43.7%	10,510	-10.7%	29,944	-19.0%	128	-13.4%
10	Oswego *	KS	D	18	-80.0%	4	-80.0%	0	0.0%	346	-59.2%	631	-63.5%	na	na	3,368	-73.0%	57	-54.7%
11	Salamanca *	NY	U	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	10,200	115.9%	0	0.0%
12	Scotland Neck	NC	U	20	0.0%	20	0.0%	na	na	364	-11.3%	5,531	-56.0%	na	na	7,394	131.6%	79	-19.5%
13	Boiling Springs *	NC	U	51	0.0%	46	0.0%	0	0.0%	475	na	16,802	na	0	na	na	na	88	na
14	Logan *	WV	U	23	0.0%	0	na	13	-57.1%	631	93.2%	1,482	-12.4%	0	0.0%	11,866	159.2%	110	76.9%
Average for Conversions				20	-9.8%	7	-3.1%	20	-1.7%	525	-11.5%	2,569	20.8%	7,062	-0.2%	8,916	39.7%	123	-6.7%
II.	Nonconversions																		
15	Cedarsville	CA	U	4	0.0%	0	0.0%	14	0.0%	177	-25.5%	0	0.0%	5,872	0.8%	6,818	-2.2%	84	9.5%
16	Meeker	CO	U	17	0.0%	17	0.0%	25	0.0%	434	125.3%	2,361	-16.8%	8,351	-24.0%	26,654	-7.6%	148	95.5%
17	Rangely	CO	U	22	0.0%	9	0.0%	na	na	229	-23.9%	2,241	-131.0%	na	na	8,554	-17.3%	100	-58.7%
18	Eads	CO	U	8	0.0%	2	0.0%	34	0.0%	386	9.0%	202	-47.5%	na	na	3,446	40.0%	105	1.1%
19	Kremmling	CO	U	19	0.0%	19	0.0%	2	na	182	171.4%	395	373.7%	140	438.1%	4,059	217.1%	69	179.7%
20	Haxton	CO	U	16	0.0%	16	0.0%	32	0.0%	615	1.1%	472	5.1%	8,602	4.7%	3,909	48.8%	173	14.6%
21	Lakin	KS	N	20	0.0%	20	0.0%	0	0.0%	500	66.4%	1,708	27.2%	0	0.0%	44,590	-84.0%	na	na
22	Atwood	KS	U	12	0.0%	6	0.0%	0	0.0%	552	-19.3%	581	-12.2%	0	0.0%	14,016	-29.1%	137	-10.7%
23	Manikato	KS	U	12	0.0%	4	28.6%	49	-4.7%	237	-20.0%	207	-3.8%	13,481	3.8%	1,668	-0.5%	63	-10.0%
24	Neodesha	KS	D	26	0.0%	26	-80.0%	0	0.0%	1,420	-20.8%	662	0.5%	1,428	-80.0%	na	na	412	7.8%
25	Cuba	NY	U	26	0.0%	5	0.0%	61	0.0%	3,187	-13.4%	868	51.0%	21,750	-1.3%	29,000	105.5%	716	-17.1%
26	Wadesboro	NC	D	52	-33.8%	0	0.0%	85	9.4%	6,668	-14.9%	0	0.0%	33,613	1.0%	8,654	3.2%	1,223	-12.5%
27	Windsor	NC	U	49	0.0%	33	0.0%	0	0.0%	2,964	-22.4%	10,489	-1.6%	0	0.0%	49,774	0.0%	563	2.6%
28	Burnsville	NC	D	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	na	0	0.0%
29	Clear Lake	SD	D	20	0.0%	4	120.0%	na	na	541	-7.8%	295	185.8%	108	-80.0%	3,500	22.8%	162	-11.9%
30	Hoven	SD	U	30	-5.7%	14	-4.1%	0	0.0%	287	10.6%	3,093	24.2%	0	0.0%	3,018	-1.8%	91	14.4%
31	Grafton	WV	D	59	0.0%	6	0.0%	99	0.0%	7,082	0.0%	na	na	na	na	55,922	310.0%	1,860	0.0%
32	Marlinton	WV	U	29	21.7%	12	0.0%	0	0.0%	4,267	-10.1%	2,701	-30.8%	0	0.0%	7,610	266.2%	702	-2.6%
Average for Nonconversions				23	-1.0%	11	3.6%	25	0.3%	1,652	11.4%	1,546	24.5%	6,223	17.5%	15,823	48.4%	389	11.9%
Average for Nonconversions excluding Graft				21	-1.0%	11	3.8%	20	0.3%	1,332	12.1%	1,546	24.5%	6,223	17.5%	13,317	30.9%	297	12.6%
Average for All Grantees				22	-4.8%	9	0.8%	23	-0.6%	1,159	1.8%	1,989	23.0%	6,596	11.4%	12,830	44.5%	269	3.8%
Adjusted Average by Removing Outliers (highest and lowest):																			
Adjusted Average for Conversions				19	-4.7%	4	1.0%	18	-1.0%	455	-15.7%	1508	-11.6%	6143	-2.6%	7815	38.7%	110	-9.3%
Adjusted Average for Nonconversions				23	-0.4%	10	1.5%	22	0.0%	1,415	3.7%	1,052	11.6%	4595	-7.3%	14,204	39.2%	317	5.4%
Adjusted Average for All Grantees				21	-3.2%	8	-0.5%	21	-0.2%	1,000	-1.6%	1,531	14.6%	5,779	-4.6%	11,749	39.4%	223	-0.1%

Notes:

1 Rate of change has been annualized

2 Bias: "U" indicates an upward seasonal bias. "D" indicates a downward seasonal bias. "N" indicates no seasonal bias

3 In Process facilities have applied for survey or reported at least a high probability of RPCH conversion on their most recent monitoring reports *Indicates application for or completed survey

4 Grafton is excluded due to indications of unreliable data

higher than average seasonal activity. "D" indicates a downward seasonal bias, variations may be influenced by lower than average seasonal activity. "N" indicates no seasonal bias.

To minimize the effects of diverse grantee experiences, we calculated a set of adjusted averages by dropping the highest and lowest numbers in each column and recomputing the means for the two groups and for all grantees. In addition, since Grafton's data seemed unreliable, we excluded Grafton and recomputed the means for the nonconverting facilities.

Although some rates of change seem quite high, we reviewed two extreme cases and found that the reported numbers are correct. At the time Kremmling Memorial Hospital (Kremmling, CO) completed its twelve-month monitoring report, the facility was in bad financial condition and was depending on three locum tenens physicians who rarely admitted patients to the hospital. The hospital was on the verge of financial failure and nearly closed. They opened a long term care unit near the end of this period, but only had a few admissions. Six months later, they had experienced a surprising turnaround. Three full-time physicians replaced the substitute physicians, and their long term care census increased to full capacity with a substantial waiting list. Their annualized increases of 171%, 374%, and 438% for acute, swing and long term care patient days are reasonable when based on this time period.

Pioneers Hospital in Meeker, CO, also reported a high rate of change for acute patient days. In 1992, they went through a time of great turmoil and turnover with both their board and medical staff. For nearly a year, they were using from one to two locum tenens doctors. Acute inpatient admissions dropped significantly. Like Kremmling, they were able to replace the temporary physicians and dramatically increase their admissions.

APPENDIX C

EACH SIMULATION METHODOLOGY

This appendix discusses our methods, data and assumptions used in simulating Medicare payments for inpatient operating and capital costs for EACH hospitals. Table C.1 and C.2 of this appendix were referenced in Chapter VII. In summary, our simulation exercise conducted (1) a baseline simulation (no EACH program) of Medicare payments and (2) a EACH program simulation, and (3) compared the differences in total Medicare payments.

A. MEDICARE OPERATING PAYMENTS

1. Baseline Payment Simulation (no EACH program)

a. Standard PPS Hospitals

- *Calculation of PPS Rate for 1994.* Based on information and data from Federal Register (August 1, 1993) and HCFA's 1994 Payment Impact File, we matched our hospitals using their Medicare provider numbers and calculated Medicare PPS rates for each of the standard PPS hospitals in our sample. Standardized amounts for each hospital were selected from among the appropriate urban, other urban, or rural rates based location and reclassification status of the hospital. These amounts were then adjusted for geographical wage differences, case-mix, indirect medical education costs, and disproportionate share of low-income patients. In addition, an estimated outlier percentage add-on was applied to the rate to represent estimated payments for outlier patients. In areas where the regional payment floor is applicable, the rate was further adjusted by calculating a 85/15 percent blend of the national and applicable regional rates.
- *Calculation of Medicare Operating Payments in 1994.* Based on data from the Federal Register (August 1, 1993), we calculated the estimated number of Medicare discharges for 1994 and then multiplied the applicable PPS rate by the number of discharges. The resulting product represents the aggregate Medicare PPS payments plus outlier payments.¹

b. Sole Community Hospitals (SCHs)

- *Calculation of the Hospital Specific Rate.* Based on data from the FY 1994 Payment Impact file, we identified each hospital's hospital specific rate. This rate is the higher of Medicare operating costs per case in 1987 or 1982, including outlier costs. We updated the rates to 1994 by applying the relevant hospital-specific update factors published in the Federal Register. We then applied the estimated case-mix for 1994 to the updated rates.²

¹These payments exclude any direct medical education payments and other pass-through costs.

²Case mix from base year is first removed, and then updated with current year case mix index.

TABLE C.1
HOSPITALS STUDY PERIODS

Hospital	Period Studied
A	Year ending December 31, 1993
B	Six months ending July 30, 1993
C	Year ending June 30, 1991
D	Ten months ending July 31, 1991
E	Eight months ending August 31, 1991
F	Year ending December 31, 1990
G	Year ending December 31, 1993
H	Year ending March 31, 1993
I	Year ending June 30, 1990
J	Eleven months ending May 31, 1993
K	Six months ending June 30, 1991
L	Year ending December 31, 1992

TABLE C.2

DISTRIBUTION OF PROJECTED CHANGES FOR RPCH CONVERSION

Hospital	Current Operation							Projected Operation						
	Acute Days	Swing-bed Days	Operating Costs	PSR	Net PSR	Adjustments	Operating Margin	Acute Days	Swing-bed Days	Operating Costs	PSR	Net PSR	Adjustments	Operating Margin
A	103	39	\$1,651,564	\$1,061,981	1,128,764	66,783	(0.4274)	57	61	\$1,620,584	\$1,047,236	1,298,390	251,154	(0.2215)
B ^a	588	180	\$992,826	\$1,530,772	823,384	(707,388)	(0.1367)	200	228	\$823,998	\$691,286	686,232	(5,054)	(0.1192)
C ^a	1,038	305	\$1,126,692	\$1,214,714	1,078,579	(136,136)	(0.0048)	321	368	\$1,050,967	\$804,282	810,151	5,869	(0.2322)
D	564	341	\$1,092,492	\$999,777	848,304	(151,473)	(0.2418)	330	443	\$1,070,131	\$907,267	916,493	9,225	(0.1289)
E	780	782	\$1,512,566	\$1,057,783	1,039,274	(18,508)	(0.3376)	350	872	\$1,473,226	\$987,995	1,165,429	177,434	(0.2193)
F ^a	850	106	\$1,973,589	\$1,533,765	1,341,081	(192,684)	(0.3356)	266	135	\$1,842,085	\$1,218,369	1,225,172	6,802	(0.3527)
G	296	293	\$1,555,013	\$1,427,268	1,314,594	(112,674)	(0.1662)	168	318	\$1,536,591	\$1,356,661	1,405,705	49,044	(0.0787)
H	1,710	0	\$2,204,724	\$2,478,304	1,947,068	(531,236)	(0.0814)	768	314	\$2,038,101	\$1,999,847	1,602,087	(397,759)	(0.2470)
I ^a	913	880	\$1,401,935	\$1,794,768	1,396,291	(398,477)	(0.0017)	203	931	\$1,030,675	\$1,262,213	1,092,673	(169,540)	(0.0596)
J	567	568	\$1,457,973	\$1,219,375	1,052,810	(166,565)	(0.5832)	254	634	\$1,392,234	\$846,515	946,647	100,132	(0.4298)
K ^a	308	0	\$1,550,886	\$1,134,709	919,666	(215,043)	(0.6414)	100	24	\$1,236,319	\$994,117	931,563	(2,554)	(0.2922)
L	1,372	460	\$3,310,896	\$4,288,341	3,388,726	(899,616)	0.0230	678	590	\$3,094,385	\$3,635,606	2,982,519	(53,087)	(0.0375)
Total	9089	3954	\$19,831,157	\$19,741,557	\$16,278,541	(\$3,463,016)		3695	4917	\$18,209,295	\$15,751,394	\$15,063,061	(\$688,333)	
Average	757	330	\$1,652,596	\$1,645,130	\$1,356,545	(\$288,585)		308	410	\$1,517,441	\$1,312,616	\$1,255,255	(\$57,361)	

- *Comparison of the Hospital-Specific Rate to the PPS Rate.* We then compared the hospital-specific rate to the PPS rate calculated above. The higher of these two rates is chosen for calculation of SCH hospitals' aggregate Medicare operating payments
- *Calculation of Aggregate Medicare Operating Payments in 1994.* Based on data from the Federal Register (August 1, 1993), we calculated the estimated number of Medicare discharges for 1994 and then multiplied the higher of the PPS rate or the hospital specific rate by the number of discharges. The resulting product represents aggregate Medicare operating payments for SCH hospitals.

2. EACH Program Payment Simulation

a. Standard PPS Hospitals

Standard PPS hospital payments were calculated based on the SCH hospital payment method described above in the baseline simulation.

b. SCH Hospitals

Payments to SCH hospitals were simulated in the same manner as in the baseline simulation. Payments under the simulation do not change for these hospitals.

3. Calculation of Payment Increases Under EACH Program

Medicare PPS payment increases under the EACH program were calculated based on the difference between payments under the baseline simulation and payments under the EACH program simulation.

B. MEDICARE CAPITAL PAYMENTS

Under the current 10-year transition to a fully prospective payment system for Medicare capital costs, hospitals are paid based on two different methods. Hospitals with Medicare capital costs per case that exceed the applicable Medicare capital PPS rate are paid based on the "hold-harmless" method. Hospitals with Medicare costs per case that fall below the capital PPS rate are paid based on the "fully prospective method". This is an important distinction for the simulation of EACH program payments because hospitals paid under the hold-harmless method are eligible for two

different types of financial protection, while hospitals paid under the fully prospective method are only eligible for one. Moreover, these financial protections are greater for SCHs than they are for standard PPS hospitals.

The methods for our simulation relied heavily on the capital payment calculation example presented on pages 43419-43420 in the Federal Register (August 30, 1991).

1. Baseline Payment Simulation (no EACH program)

a. Determination of Medicare Capital Payment Transition Status

During the transition to a Medicare PPS for capital, hospitals are designated as either fully prospective or hold-harmless hospitals by comparing their hospital-specific capital cost per case with their applicable Medicare PPS capital rates. This determination is done in an identical manner for both standard PPS hospitals and SCH hospitals.

- *Calculation of Capital Hospital-Specific Rate.* Hospital specific costs are defined as Medicare capital costs incurred during cost reporting periods ending before October 30, 1990 and updated to the current fiscal year. For our simulation, hospital-specific costs were calculated by (1) identifying the Medicare capital costs for each hospital in HCFA's Medicare Hospital Cost Report, Minimum Data Set, PPS VII, (2) dividing by the number of discharges, and (3) updating the resulting rate to 1994 using update factors, case-mix, budget neutrality, and exceptions factors based on information in the Federal Register (September 1, 1993).
- *Calculation of Capital PPS Rate for Comparison Purposes.* For purposes of comparison with the hospital-specific rate, each hospital's 1994 Medicare PPS capital rate was then adjusted for geographic location, disproportionate share, and indirect teaching expenses based on data from the Federal Register (September 1, 1994). To allow for appropriate comparisons with the hospital specific rate, the outlier payment reduction factor was removed from the capital PPS rate.
- *Comparison of the Capital PPS Rate to the Hospital-Specific Rate.* The two rates discussed above were then compared. Payments to hospitals with hospital specific rates exceeding the PPS rate were simulated through the hold-harmless method; payment to hospitals with hospital specific rates below the PPS rate were simulated through the fully prospective method.

b. Hold-Harmless Payment Method

- *Standard PPS Hospitals.* Under the hold-harmless method, standard PPS hospitals receive discounted (85 percent) cost reimbursement for their "old" capital costs (incurred before December 31, 1991). For our simulation, old capital costs were identified from the hospital cost reports from PPS IX,³ and updated to 1994 using update factors published in the Federal Register (August 30, 1993). For the "new" capital costs, hospitals receive a portion (ratio of new capital to total capital) of the capital PPS rate for each Medicare discharge.⁴
- *SCH Hospitals.* SCHs are paid in nearly the same manner as standard PPS hospitals under the hold harmless method, except that reimbursement for old capital cost is not discounted; that is, they receive payments 100 percent of their old capital costs.

c. Fully Prospective Payment Method

- *Standard PPS Hospitals.* Under the fully prospective method, hospitals are paid a blend of the capital PPS rate and their hospital specific rate for each Medicare discharge. During each year of the ten-year transition, the proportion of capital PPS payments grows until, by the 10th year, all payments are based on the PPS rate. In our simulation, payments were simulated during the third year of the transition. Thus, 30 percent of payments to fully prospective hospitals were based on capital PPS and 70 percent were based on the hospital specific rate.
- *SCH Hospitals.* SCHs are paid in the same manner as standard PPS hospitals under the fully prospective method. There are no Medicare capital payment advantages under this method for SCHs.

d. Exceptions Process

All hospitals receive the financial protection of a payment floor under the transition, whereby cumulative Medicare capital payments after FY 1992 must equal at least a minimum percentage of cumulative Medicare capital costs.⁵ The payment floor varies depending on whether the hospital is a standard PPS or SCH hospital.

³This was most recent cost data available at the time of the simulation.

⁴If, at any time during the transition, a hospital's aggregate payment would be higher under 100 percent of the capital PPS rate than under the hold-harmless method, the hospital is paid based on 100 percent the capital rate. This possibility was also included in our simulation.

⁵Our simulation was limited to one year's worth of data. Therefore, it would not capture the effects of hospitals with payments falling below this cost floor in previous years.

- *Standard PPS Hospitals.* These hospital must receive Medicare capital payments that are at least 90 percent of cumulative Medicare capital costs.
- *SCH Hospitals.* These hospitals must receive Medicare capital payments that are at least 70 percent of cumulative Medicare capital costs.

2. EACH Program Payment Simulation

a. Standard PPS Hospitals

Under the EACH program simulation, payments for standard PPS hospitals were simulated in a manner identical to SCH hospitals in the baseline simulation. That is, standard PPS hospitals designated as hold-harmless hospitals received 100 percent of their old capital costs, rather than 85 percent. All standard PPS hospitals (hold-harmless and fully prospective) are eligible for increase in cumulative payment floor, where applicable, from 70 to 90 percent of cumulative costs.

b. SCH Hospitals

Medicare capital payments to SCH hospitals were simulated in the same manner as in the baseline simulation. Payments under the simulation do not change for these hospitals.

3. Calculation of Payment Increases Under EACH Program

Medicare capital payment increases under the EACH program were calculated based on the difference between payments under the baseline simulation and payments under the EACH program simulation.

APPENDIX D

MAF FINANCIAL INFORMATION

This appendix describes the financial analysis of the operating MAF facilities with a group of comparison facilities, including the selection of reporting periods and an explanation of the relevant variables. We collected Medicare cost report data for the 6 operating MAF hospitals and 14 small rural comparison hospitals for fiscal years 1990 through 1993. Most of the data were collected from HCFA's electronic files, but we supplemented these with the most recent hard copy reports from the Montana fiscal intermediary.¹ Our analysis focused on two cost reporting periods intended to represent a pre-MAF and a post-MAF period. This method allowed us to observe trends for the MAFs during the conversion process and compare them to trends for a similar group of comparison hospitals.

We selected the pre- and post-MAF reporting periods to create as much time overlap as possible for individual hospitals (both MAF and comparison), so that we could account for any confounding trends in the small hospital market. We also attempted to represent periods within a year or two prior to each individual MAF's conversion, and when possible, at least a year following conversion to allow for any structural changes. Table D.1 shows the MAF hospitals, their conversion dates, and the pre and post MAF reporting periods for each hospital. Most pre-MAF cost reports cover 1989-1990; most post-MAF reports represent 1992-1993.² Conversion dates range from December 1990 (McCone Hospital in Circle) to March 1994 (Granite Hospital in Philipsburg). Because our pre- and post-MAF periods vary, we standardized our trend analysis across hospitals by calculating an average annual percentage change.

The table illustrates several limitations imposed on our analysis by hospital closures and the lack of data availability in providing measures of all pre- and post-MAF periods. Specifically, we were not able to collect any pre-MAF data on Dahl County Hospital in Ekalaka and post-MAF data on Granite County Hospital in Philipsburg. However, because we had data available from the

¹Where necessary, data from cost reports representing less than a full year were annualized.

²Comparison hospitals reporting periods in our analysis follow a similar pattern. See Table D.2 for more detail on comparison reporting periods.

TABLE D.1
MAF CONVERSION DATES AND COST REPORT
ANALYSIS PERIODS

	Pre-MAF Cost- Reporting Period	MAF Conversion Date	Post-MAF Cost- Reporting Period
McCone County (Circle)	FY1990	December 1990	FY1993
Garfield County (Jordan)	FY1991	May 1991	FY1993
Prarie Community (Terry)	FY1990	May 1991	FY1993
Roosevelt Memorial (Culbertson)	FY1990	May 1991	FY1993
Granite County (Philipsburg)	*	January 1992	FY1993
Dahl Memorial (Ekalaka)	FY1990	March 1994	FY1993

*No data available.

Philipsburg MAF for all periods immediately prior to MAF conversion, we present the most recent FY 1993 data as "post-MAF" to show trends for this hospital--although these data were excluded when calculating post-MAF calculations for our hospitals as a group. In addition, key financial data for McCone County Hospital in Circle were also not available in the pre-MAF period.

The utilization data collected from the cost reports include inpatient hospital days, discharges and average length of stay (for Medicare and all patients). We also collected information on swing bed utilization, but the data appear incomplete, particularly in the post-MAF reporting periods. The financial data collected includes all-payer revenues and expenses, and fund balance information (assets and liabilities). A major limitation of our analysis is that Medicare cost and revenue trend information were unavailable. We were unable to calculate Medicare financial trends because of the lack of comparability in the Medicare cost and revenue reporting formats between pre- and post-MAF periods, because of the change from Medicare PPS to cost-based reimbursement. The major implication of this limitation is that we were unable to calculate Medicare inpatient financial margins, a key indicator of a hospital's financial status under Medicare payment changes. Instead, we relied on a calculation of total hospital margins, which provide a reasonable measure of total facility financial status. However, revenue and expenses used to calculate this indicator are based on all patients and payers, and on all activities of the facility, including long-term care and activities unrelated to patient care.

Overall, the following cost report variables were collected and analyzed, as shown in Table D.2:

- *Medicare Inpatient Days (excluding swing beds)*. This variable consists of acute inpatient days for Medicare patients and excludes swing bed and skilled nursing facility (SNF) care and other non-routine care such as intensive care.
- *All Payer Inpatient Days (excluding swing beds)*. This variable is defined in the same way as Medicare days, only it includes all patients.
- *Medicare Days/All Payer Days*. This variable is the ratio of Medicare inpatient days to all inpatient days.
- *Medicaid Days/All Payer Days*. This variable is the ratio of Medicaid inpatient days to all inpatient days.

TABLE D.2

SELECTED FINANCIAL INDICATORS FOR MAF AND COMPARISON HOSPITALS

Hospital Name	City	Pre-MAF Cost Report Dates	Post-MAF Cost Report Dates	Pre-MAF Medicare Patient Days (ex. Swing Beds)	Post-MAF Medicare Patient Days (ex. Swing Beds)
MAF Hospitals					
McCone County	Circle	7/1/89 - 6/30/90	7/1/92 - 6/30/93	237	60
Prairie Community	Terry	7/1/89 - 6/30/90	7/1/92 - 6/30/93	36	73
Roosevelt Memorial	Culbertson	5/1/89 - 4/30/90	11/20/92 - 4/30/93	402	260
Garfield County	Jordan	7/1/90 - 6/30/91	10/1/92 - 9/30/93	7	13
Granite County	Philipsburg	7/1/89 - 6/30/90	7/1/92 - 2/28/93	171	87
Dahl Memorial	Ekalaka		7/1/92 - 6/30/93		45
Mean of MAFs *				225	131
Comparison Hospitals					
Mountainview	White Sulphur Springs	7/1/89 - 6/30/90	7/1/92 - 6/30/93	171	162
Mineral	Superior	7/1/89 - 6/30/90	7/1/92 - 6/30/93	498	343
Roundup Memorial	Roundup	7/1/89 - 6/30/90	7/1/92 - 6/30/93	411	279
Teton	Choteau	7/1/89 - 5/31/90	7/1/92 - 6/30/93	847	328
Wheatland	Harlowton	1/1/90 - 12/31/90	1/1/93 - 12/31/93	432	423
Daniels Memorial	Scobey	7/1/89 - 6/30/90	7/1/92 - 6/30/93	166	250
Powell County	Deer Lodge	7/1/89 - 12/31/89	7/1/92 - 6/30/93	464	468
Phillips County	Malta	5/1/89 - 4/30/90	5/1/92 - 4/30/93	429	321
Ruby Valley	Sheridan	11/1/89 - 10/31/90	11/1/92 - 10/31/93	450	359
Broadwater	Townsend	10/1/89 - 9/30/90	10/1/92 - 9/30/93	400	482
Liberty County	Chester	7/1/89 - 6/30/90	7/1/92 - 6/30/93	890	600
Missouri River	Fort Benton	7/1/89 - 6/30/90	7/1/92 - 6/30/93	268	304
Madison Valley	Ennis	10/1/89 - 9/30/90	10/1/92 - 9/30/93	675	391
Mean of Comparison Hospitals *				469	362

TABLE D.2 (continued)

Hospital Name	City	Pre-MAF All Payer Patient Days	Post-MAF All Payer Patient Days	Pre-MAF Medicare Days/ All Payer Days	Post-MAF Medicare Days/ All Payer Days
MAF Hospitals					
McCone County	Circle	303	70	0.78	0.86
Prairie Community	Terry	58	86	0.62	0.85
Roosevelt Memorial	Culbertson	706	357	0.57	0.73
Garfield County	Jordan	10	26	0.70	0.50
Granite County	Philipsburg	217	102	0.79	0.85
Dahl Memorial	Ekalaka		54		0.83
Mean of MAFs *		356	171	0.66	0.81
Comparison Hospitals					
Mountainview	White Sulphur Springs	328	229	0.52	0.71
Mineral	Superior	985	590	0.51	0.58
Roundup Memorial	Roundup	539	363	0.76	0.77
Teton	Choteau	989	472	0.86	0.69
Wheatland	Harlowton	647	534	0.67	0.79
Daniels Memorial	Scobey	289	364	0.57	0.69
Powell County	Deer Lodge	836	815	0.56	0.57
Phillips County	Malta	582	529	0.74	0.61
Ruby Valley	Sheridan	627	557	0.72	0.64
Broadwater	Townsend	660	613	0.61	0.79
Liberty County	Chester	1,248	916	0.71	0.66
Missouri River	Fort Benton	357	384	0.75	0.79
Madison Valley	Ennis	933	556	0.72	0.70
Mean of Comparison Hospitals *		694	532	0.67	0.69

TABLE D.2 (continued)

Hospital Name	City	Pre-MAF Medicaid Days/ All Payer Days	Post-MAF Medicaid Days/ All Payer Days	Pre-MAF Medicare Inpatient Discharges	Post-MAF Medicare Inpatient Discharges
MAF Hospitals					
McCone County	Circle	0.00		49	18
Prairie Community	Terry	0.02		11	21
Roosevelt Memorial	Culbertson	0.03	0.10	99	82
Garfield County	Jordan	0.00		2	10
Granite County	Philipsburg	0.11	0.02	30	15
Dahl Memorial	Ekalaka		0.00		19
Mean of MAFs *		0.03	0.10	53	40
Comparison Hospitals					
Mountainview	White Sulphur Springs	0.13	0.02	54	52
Mineral	Superior	0.19	0.15	120	100
Roundup Memorial	Roundup	0.01	0.04	108	87
Teton	Choteau	0.29		184	67
Wheatland	Harlowton	0.05	0.19	106	97
Daniels Memorial	Scobey	0.02	0.01	47	63
Powell County	Deer Lodge	0.08	0.08	132	133
Phillips County	Malta	0.03	0.13	132	99
Ruby Valley	Sheridan	0.05	0.11	127	97
Broadwater	Townsend	0.05	0.80	94	123
Liberty County	Chester	0.05	0.04	163	116
Missouri River	Fort Benton	0.48	0.03	47	90
Madison Valley	Ennis	0.03	0.02	113	131
Mean of Comparison Hospitals *		0.10	0.14	110	97

TABLE D.2 (continued)

Hospital Name	City	Pre-MAF All Payer Discharges	Post-MAF All Payer Discharges	Pre-MAF Medicare/ All Payer Discharges	Post-MAF Medicare/ All Payer Discharges
MAF Hospitals					
McCone County	Circle	94	20	0.52	0.90
Prairie Community	Terry	23	31	0.48	0.68
Roosevelt Memorial	Culbertson	273	121	0.36	0.68
Garfield County	Jordan	3	14	0.67	0.71
Granite County	Philipsburg	55	18	0.55	0.83
Dahl Memorial	Ekalaka		24		0.79
Mean of MAFs *		130	57	0.45	0.75
Comparison Hospitals					
Mountainview	White Sulphur Springs	112	89	0.48	0.58
Mineral	Superior	314	177	0.38	0.56
Roundup Memorial	Roundup	168	118	0.64	0.74
Teton	Choteau	279	131	0.66	0.51
Wheatland	Harlowton	177	129	0.60	0.75
Daniels Memorial	Scobey	98	104	0.48	0.61
Powell County	Deer Lodge	308	337	0.43	0.39
Phillips County	Malta	200	176	0.66	0.56
Ruby Valley	Sheridan	222	168	0.57	0.58
Broadwater	Townsend	190	165	0.49	0.75
Liberty County	Chester	290	211	0.56	0.55
Missouri River	Fort Benton	92	129	0.51	0.70
Madison Valley	Ennis	208	224	0.54	0.58
Mean of Comparison Hospitals *		204	166	0.54	0.61

TABLE D.2 (continued)

Hospital Name	City	Pre-MAF Medicaid/ All Payer Discharges	Post-MAF Medicaid/ All Payer Discharges	Pre-MAF Medicare Average Length of Stay	Post-MAF Medicare Average Length of Stay
MAF Hospitals					
McCone County	Circle	0.00		4.8	3.3
Prairie Community	Terry	0.04		3.3	3.5
Roosevelt Memorial	Culbertson	0.02	0.09	4.1	3.2
Garfield County	Jordan	0.00		3.5	1.3
Granite County	Philipsburg	0.09	0.08	5.7	5.8
Dahl Memorial	Ekalaka		0.00		2.4
Mean of MAFs *		0.02	0.09	4.1	3.3
Comparison Hospitals					
Mountainview	White Sulphur Springs	0.12	0.02	3.2	3.1
Mineral	Superior	0.10	0.18	4.2	3.4
Roundup Memorial	Roundup	0.04	0.07	3.8	3.2
Teton	Choteau	0.07	0.00	4.6	4.9
Wheatland	Harlowton	0.04	0.07	4.1	4.4
Daniels Memorial	Scobey	0.02	0.03	3.5	4.0
Powell County	Deer Lodge	0.08	0.11	3.5	3.5
Phillips County	Malta	0.03	0.13	3.3	3.2
Ruby Valley	Sheridan	0.07	0.08	3.5	3.7
Broadwater	Townsend	0.08	0.13	4.3	3.9
Liberty County	Chester	0.04	0.06	5.5	5.2
Missouri River	Fort Benton	0.00	0.05	5.7	3.4
Madison Valley	Ennis	0.03	0.02	6.0	3.0
Mean of Comparison Hospitals *		0.05	0.07	4.2	3.8

TABLE D.2 (continued)

Hospital Name	City	Pre-MAF All Payer Average Length of Stay	Post-MAF All Payer Average Length of Stay	Pre-MAF Total Pt Revenue	Post-MAF Total Pt Revenue
MAF Hospitals					
McCone County	Circle	3.2	3.5		1,164,148.00
Prairie Community	Terry	2.5	2.8	549,857.00	780,829.00
Roosevelt Memorial	Culbertson	2.6	3.0	1,432,084.00	2,735,390.40
Garfield County	Jordan	3.3	1.9	583,261.00	380,217.00
Granite County	Philipsburg	3.9	5.7	607,752.00	989,283.00
Dahl Memorial	Ekalaka		2.3		829,720.00
Mean of MAFs *		2.8	3.1	990,970.50	1,758,109.70
Comparison Hospitals					
Mountainview	White Sulphur Springs	2.9	2.6	960,275.00	1,420,146.00
Mineral	Superior	3.1	3.3	1,870,755.00	2,126,612.00
Roundup Memorial	Roundup	3.2	3.1	1,797,642.00	2,224,267.00
Teton	Choteau	3.5	3.6	1,796,125.09	2,027,138.00
Wheatland	Harlowton	3.7	4.1	1,660,041.00	2,129,954.00
Daniels Memorial	Scobey	2.9	3.5	1,096,986.00	1,559,557.00
Powell County	Deer Lodge	2.7	2.4	1,424,726.00	2,101,275.00
Phillips County	Malta	2.9	3.0	714,070.00	1,671,833.00
Ruby Valley	Sheridan	2.8	3.3	677,671.00	838,854.00
Broadwater	Townsend	3.5	3.7	1,503,918.00	2,105,850.00
Liberty County	Chester	4.3	4.3	1,827,999.00	2,301,138.00
Missouri River	Fort Benton	3.9	3.0	1,199,585.00	2,130,026.00
Madison Valley	Ennis	4.5	2.5	532,596.00	653,116.00
Mean of Comparison Hospitals *		3.4	3.3	1,312,491.47	1,791,520.46

TABLE D.2 (continued)

Hospital Name	City	Pre-MAF Outpatient/ Total Patient Revenue	Post-MAF Outpatient/ Total Patient Revenue	Pre-MAF Contractual Allowances	Post-MAF Contractual Allowances
MAF Hospitals					
McCone County	Circle		0.14		(78,497.00)
Prairie Community	Terry	0.15	0.27	32,482.00	(16,766.00)
Roosevelt Memorial	Culbertson	0.13	0.38	40,920.00	86,817.60
Garfield County	Jordan	0.28	0.06	920.00	(14,678.00)
Granite County	Philipsburg	0.27	0.24		35,578.50
Dahl Memorial	Ekalaka		0.36		(22,522.00)
Mean of MAFs *		0.14	0.32	36,701.00	35,025.80
Comparison Hospitals					
Mountainview	White Sulphur Springs	0.23	0.27	61,103.00	49,218.00
Mineral	Superior	0.33	0.34	162,382.00	338,334.00
Roundup Memorial	Roundup	0.33	0.43	144,360.00	326,573.00
Teton	Choteau	0.25	0.27	214,797.82	295,170.00
Wheatland	Harlowton	0.39	0.35	118,330.00	166,545.00
Daniels Memorial	Scobey	0.12	0.17	28,283.00	15,714.00
Powell County	Deer Lodge	0.29	0.50	80,316.00	264,963.00
Phillips County	Malta	0.49	0.70	0.00	246,110.00
Ruby Valley	Sheridan	0.47	0.56	23,716.00	14,328.00
Broadwater	Townsend	0.17	0.32	109,190.00	157,651.00
Liberty County	Chester	0.13	0.18	0.00	90,838.00
Missouri River	Fort Benton	0.22	0.29	50,426.00	85,574.00
Madison Valley	Ennis	0.35	0.51	18,000.00	(58,223.00)
Mean of Comparison Hospitals *		0.29	0.38	77,761.83	153,291.92

TABLE D.2 (continued)

Hospital Name	City	Pre-MAF Net Patient Revenue	Post-MAF Net Patient Revenue	Pre-MAF Hospital Operating Expenses	Post-MAF Hospital Operating Expenses
MAF Hospitals					
McCone County	Circle		1,242,645		1,145,791
Prairie Community	Terry	517,375	797,595	643,194	842,123
Roosevelt Memorial	Culbertson	1,391,164	2,648,573	1,687,990	2,813,772
Garfield County	Jordan	582,341	394,895	799,413	516,960
Granite County	Philipsburg	607,752	953,705	786,797	1,309,394
Dahl Memorial	Ekalaka		852,242		1,013,345
Mean of MAFs *		954,270	1,723,084	1,165,592	1,827,948
Comparison Hospitals					
Mountainview	White Sulphur Springs	899,172	1,370,928	1,350,008	1,671,419
Mineral	Superior	1,708,373	1,788,278	1,904,862	2,142,767
Roundup Memorial	Roundup	1,653,282	1,897,694	1,799,452	2,383,841
Teton	Choteau	1,581,327	1,731,968	1,814,580	1,897,189
Wheatland	Harlowton	1,541,711	1,963,409	1,885,945	2,387,541
Daniels Memorial	Scobey	1,068,703	1,543,843	1,282,197	1,662,048
Powell County	Deer Lodge	1,344,410	1,836,312	1,434,220	2,181,899
Phillips County	Malta	714,070	1,425,723	968,477	1,330,457
Ruby Valley	Sheridan	653,955	824,526	797,170	919,780
Broadwater	Townsend	1,394,728	1,948,199	1,847,600	2,672,001
Liberty County	Chester	1,827,999	2,210,300	1,965,853	2,502,571
Missouri River	Fort Benton	1,149,159	2,044,452	1,471,784	2,338,368
Madison Valley	Ennis	514,596	711,339	641,394	735,833
Mean of Comparison Hospitals *		1,234,730	1,638,229	1,474,119	1,909,670

TABLE D.2 (continued)

Hospital Name	City	Pre-MAF Total Non Patient/ Total Hospital Revenue	Post-MAF Total Non Patient/ Total Hospital Revenue	Pre-MAF Total Hospital Margin	Post-MAF Total Hospital Margin
MAF Hospitals					
McCone County	Circle		0.12		0.18
Prairie Community	Terry	0.23	0.22	0.04	0.18
Roosevelt Memorial	Culbertson	0.10	0.07	(0.10)	0.02
Garfield County	Jordan	0.26	0.33	(0.02)	0.13
Granite County	Philipsburg	0.12	0.10	(0.13)	0.00
Dahl Memorial	Ekalaka		0.23		0.09
Mean of MAFs *		0.16	0.15	(0.03)	0.10
Comparison Hospitals					
Mountainview	White Sulphur Springs	0.24	0.22	(0.15)	0.05
Mineral	Superior	0.04	0.10	(0.08)	(0.08)
Roundup Memorial	Roundup	0.07	0.09	(0.01)	(0.15)
Teton	Choteau	0.05	0.11	(0.10)	0.03
Wheatland	Harlowton	0.16	0.13	(0.03)	(0.06)
Daniels Memorial	Scobey	0.14	0.10	(0.04)	0.03
Powell County	Deer Lodge	0.03	0.17	(0.04)	0.01
Phillips County	Malta	0.19	0.06	(0.13)	0.13
Ruby Valley	Sheridan	0.19	0.09	0.01	(0.02)
Broadwater	Townsend	0.18	0.31	(0.10)	0.05
Liberty County	Chester	0.04	0.12	(0.02)	0.00
Missouri River	Fort Benton	0.17	0.20	(0.07)	0.01
Madison Valley	Ennis	0.25	0.16	0.07	0.13
Mean of Comparison Hospitals *		0.13	0.14	(0.05)	0.01

TABLE D.2 (continued)

Hospital Name	City	Pre-MAF Total Assets	Post-MAF Total Assets	Pre-MAF Total Liabilities	Post-MAF Total Liabilities	Pre-MAF Fund Balance	Post-MAF Fund Balance
MAF Hospitals							
McCone County	Circle	1,173,306	1,862,761	528,071	801,686	645,235	1,061,075
Prairie Community	Terry	692,220	980,010	91,284	147,894	600,936	832,116
Roosevelt Memorial	Culbertson	2,943,968	2,710,325	1,324,105	1,591,968	1,819,863	1,118,357
Garfield County	Jordan	302,798	540,719	105,606	73,562	197,192	467,157
Granite County	Philipsburg	547,335	287,564	80,115	70,016	467,220	217,548
Dahl Memorial	Ekalaka		370,222		75,309		294,913
Mean of MAFs *		1,603,165	1,851,032	647,820	847,183	955,345	1,003,849
Comparison Hospitals							
Mountainview	White Sulphur Springs	954,060	1,226,172	582,554	583,999	371,506	642,173
Mineral	Superior	1,564,079	1,351,497	348,640	393,189	1,215,439	958,308
Roundup Memorial	Roundup	2,651,387	2,230,721	332,786	305,170	2,318,601	1,925,551
Teton	Choteau	261,382	2,099,279	254,597	578,810	6,785	1,520,469
Wheatland	Harlowton	1,138,069	1,068,035	167,037	451,323	971,032	616,712
Daniels Memorial	Scobey	1,258,174	1,695,913	159,520	211,163	1,098,654	1,484,750
Powell County	Deer Lodge	278,478	1,267,244	668,130	581,076	(389,652)	686,168
Phillips County	Malta	2,121,935	2,125,467	238,290	90,580	1,883,645	2,034,887
Ruby Valley	Sheridan	607,023	569,890	163,604	338,237	443,419	231,653
Broadwater	Townsend	831,249	974,085	591,450	673,080	239,799	301,005
Liberty County	Chester	3,527,244	3,864,691	1,695,776	1,864,912	1,831,468	1,999,779
Missouri River	Fort Benton	380,480	4,221,498	276,619	4,112,664	103,861	108,834
Madison Valley	Ennis	935,924	841,126	161,338	207,253	774,586	633,873
Mean of Comparison Hospitals *		1,269,960	1,810,432	433,872	799,343	836,088	1,011,089

*Excludes hospitals when data are missing or unavailable in either the pre- or post-MAF periods.

- *Medicare Inpatient Discharges (excluding swing beds)*. This variable consists of acute inpatient discharges for Medicare patients and excludes swing bed and SNF care and non-routine acute services such as intensive care.
- *All Payer Inpatient Discharges (excluding swing beds)*. This variable is defined in the same way as Medicare days, only it includes all patients.
- *Medicare Discharges/All Payer Discharges*. This variable is the ratio of Medicare inpatient discharges to all inpatient discharges.
- *Medicaid Discharges/All Payer Discharges*. This variable is the ratio of Medicaid inpatient discharges to all inpatient discharges.
- *Medicare Average Length of Stay*. This variable consists of the ratio of acute inpatient days to acute inpatient discharges for Medicare patients and excludes swing bed and SNF care and non-routine acute services such as intensive care.
- *All Payer Average Length of Stay*. This variable consists of the ratio of acute inpatient days to acute inpatient discharges for all patients and excludes swing bed and SNF care and other non-routine acute services such as intensive care.
- *Total Patient Revenue*. This variable represents facility charges for all inpatient and outpatient services in the hospital, including all acute care, and any swing bed or SNF care. This does not reflect actual payment to the hospital, as it does not include contractual allowances for third-party payers.
- *Outpatient/Total Patient Revenue*. This variable represents the ratio of outpatient charges to total charges for all patient services (including swing bed and SNF care).
- *Contractual Allowances*. This variable represents the difference between what the hospital charges for all patient services and what it receives.
- *Net Patient Revenue*. This variable represents total payments received by the hospital for all patient services, and equals total patient revenue minus contractual allowances.
- *Hospital Operating Expenses*. This variable generally consists of all expenses for the hospital. Occasionally, a hospital will also specify a small amount of other expenses.
- *Non-Patient Revenue/Total Hospital Revenue*. This variable is the ratio of non-patient revenue to total hospital revenue. Non-patient revenue consists of revenue other than direct payments for patient care, including local subsidies. Total hospital revenue is net patient revenue plus non-patient revenue.
- *Total Hospital Margins*. This variable can be defined as the difference between hospital revenue and hospital expenses as a percentage of hospital revenue. More specifically, the variable is defined as $(\text{Total Hospital Revenue} - \text{Total Hospital Expenses}) / \text{Total Hospital Revenue}$. The variable is intended to measure

the overall financial status of hospital including all sources of revenue and all expenses.

- ***Total Hospital Assets.*** This variable includes (1) current hospital assets such as cash and accounts receivable, (2) fixed assets such as land, buildings, and equipment (less depreciation) and (3) other assets such as investments.
- ***Total Hospital Liabilities.*** This variable includes current liabilities such as accounts and salaries payable and long term liabilities such as mortgages.
- ***Total Fund Balance.*** This variable represents the difference between Total Hospital Assets and Total Hospital Liabilities.

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